

International Abstract of Surgery

SUPPLEMENTARY TO

Surgery, Gynecology and Obstetrics

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INTERNATIONAL ABSTRACT OF SURGERY

JANUARY, 1936

COLLECTIVE REVIEW

A REVIEW OF THE 1933 AND 1934 LITERATURE ON FRACTURES

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THE number and the diversity of the articles dealing with fractures that have been published during the past two years suggest a wide interest in the subject, not only in this country but in Europe, an interest which is aroused by the new methods of treatment that are coming into use and stimulated not only by the apparent increase in the number of fractures, but also by the growing recognition of their importance to compensation boards, insurance companies, and the public. As Plummer says "No subject in the field of surgery is receiving more intelligent and earnest attention at the present time. The lethargy of the early decades of Listerism has been replaced by a notable vitality the former stepchild of surgery refused to remain in that status and is now one of the most vocal members of the family."

The articles on the subject vary from lengthy summaries covering the whole field of fracture treatment to single case reports, and it is not within the scope of this article to mention them all. It seems to the reviewer that the main purpose of a summary of this type is two-fold, first, to mention and evaluate in the text trends and tendencies of general interest, and second, to append a tabulated bibliography to which the reader may turn for further study should he so desire.

Undoubtedly, some of the articles not quoted are equal in value to those that are. Representative material has been chosen as far as possible. In presenting the material we felt it wise to divide it up into sections, some of which necessarily

overlap. In the first part, general principles have been discussed, and in the second, the treatment of specific fractures. In the latter group, in most instances, the classic or well-recognized form of treatment is not particularly stressed, the purpose being to bring out modifications, changes, and recent developments.

PART I

GENERAL DISCUSSION

A difference of considerable interest is manifest in the general articles from Europe and those from this country. Most of the articles from Europe discuss problems of fracture treatment of interest to the general practitioner (Forschuetz, Lobenhoffer, Mueller), while those published in this country lay great stress on fracture education, not only in the medical schools and hospitals, but also of the public, with special emphasis on the need for adequate first-aid treatment. The work of the Fracture Committee of the American College of Surgeons is largely responsible for this, and the publications of that Committee are of extreme interest (Kennedy, Scudder, Bancroft). There are, however, certain fundamental principles which are stressed both in Europe and in America, namely, the need for early reduction and the necessity for attention to the soft parts. The importance of soft part pathology with the emphasis on the restoration of function as well as of anatomy is the keynote of many articles (Scott, Schaefer, Koehl and Fuchs). The reader is referred to excellent articles on the general prin-

diples of fracture treatment (Caldwell, Cotton, Eliason, and Lange). In order to put these principles into practice the need for adequate hospital organization with X rays available at all hours is becoming recognized. Pottl particularly stresses this in his article "Principles of organization." It is brought out also by Puccinelli as well as by men in this country. To recapitulate, emphasis is laid on adequate first-aid treatment, immediate reduction and early functional restoration, stressing the need of adequate organization to accomplish these aims.

There are certain definite trends in therapeutic principles at the present time which are of great interest. In Europe, the methods which bear Boehler's name are being much discussed. The use of the unpadded plaster cast after closed reduction, either with or without the use of wire traction, followed by active use of the part insofar as possible has had widespread recognition (Winterstein, Lockin, and many others). An excellent and detailed discussion of Boehler's technique, written by Fontaine from Leriche's clinic, is strongly recommended as an unprejudiced and careful analysis. Fontaine approves of the methods for the most part, but feels that Boehler does not give a fair appraisal of open reduction. One of the adjuncts in the application of the Boehler method is the use of local anesthesia (Petrov, Schneek, Stabback) which is becoming accepted both in Europe and in America as a relatively safe and simple procedure. Careful aseptic technique is, of course, necessary. That the unpadded cast is not without danger in the hands of the inexperienced is brought out by several writers (Lange, Bandy, Frisch, Mandl) and deserves to be noted. It is also of importance to understand that the correct use of the method entails stress on active motion to combat atrophy and circulatory stasis (Schaefer). In this country the so-called Boehler methods are recognized and favorably commented upon (Klayson) but there is more discussion of the use of wire traction in many forms and the literature contains numerous descriptions of various gadgets both for insertion of the wires and for maintenance of traction, either with or without plaster. Devices of various kinds differing little from one another—ingenious and based on good mechanical principles in the majority of cases—are described from all parts of the country. Undoubtedly the use of the Kirschner wire is gaining an important and well-recognized place for itself in fracture treatment, but three notes of caution are being sounded.

1. The need for absolutely aseptic technique in the insertion (Klapp)

2. The recognition of the type of case which is suitable for its use. "Individuality is essential for best results" (Eliason)

3. The danger of overpull and its possible relationship to delayed and non-union (Vigand, Blum, Conway)

In spite of the great interest in closed methods in the treatment of fractures, there is still much discussion of open reduction, with or without internal fixation. Most authors agree that in fractures of the patella and of the olecranon, operation of some sort is the method of choice but about fractures of the long bones opinions vary widely. The majority believe that the open reduction of a fracture is not only justifiable but advisable under certain circumstances and these circumstances are clearly defined: (1) that operation be considered in most instances only when reduction or maintenance of reduction has proved unsuccessful, and (2) that it be done only by specially trained surgeons and assistants with a meticulous aseptic technique, with skin preparation from forty-eight to seventy-two hours before the operation, and with adequate equipment (Jackson, Serra, Selfert, Troell). The time when operative interference should be undertaken is considered of great importance. Many writers feel that if it is performed too soon, delay in callus formation is engendered. The reader is referred to an extremely interesting article by Goets and Brackerts, who have done experimental work showing that there is definite delay in callus formation with open reduction, either with or without fixation, but that this is not so marked if operation is delayed for from seven to ten days. Other writers, basing their opinions for the most part on clinical experience, also agree that operation between one and two weeks is the time of choice (Frisch, Moeller, Cimanata). Caldwell, on the other hand, holds that this is an unnecessary waste of time as his clinical results have been better after earlier operation. His statements, however, are given without statistical support and the majority of published opinions at the present time do not agree with him.

The question of what should be done at operation has led to considerable discussion and it is hard to form a true estimate of the advantages of the different methods as undoubtedly results are best obtained by the use of the medium to which the particular surgeon is most accustomed—steel plates (Nicolau) wires (Potter and Husted) and cerclage with metal bands (Troell) bolts (Rupp) intracortical pegs (Just, Feldmann). One school of thought maintains that the use of foreign material is not justified and that open

reduction alone with external fixation is all that is necessary (Mumford). Diverse methods of fastening wires or screws from the bone to plates outside of the skin or wires run through tubes to facilitate removal are described, particularly by French authors (Houdard and Judet). The advantages of open reduction with internal fixation are accurate reposition, rigid fixation, and early motion of the adjacent joints. The last advantage, however, is stressed by very few. Most authors feel that plaster immobilization for a long period of time is advisable. The disadvantages of open reduction and internal fixation are the danger of infection and delayed callus formation due to chemical changes in the surrounding tissues caused both by the operative procedure and by the foreign material (Lexer). The weight of evidence, however, lies with those who advise open reduction with or without internal fixation in selected cases by surgeons who are adequately trained and equipped for such procedures. It is generally agreed that bands and circular wires should always be removed, but that plates do not necessarily require removal unless there is infection or unless they are close to the skin (Horsch, Troell, Jackson, Potter and Husted). The use of tendon and of fascia lata as living sutures to aid in the maintenance of position is advocated in interesting articles by Hey-Groves and by Gratz and Robison. Hey-Groves describes his technique but gives no case studies nor end-results, and Gratz and Robinson present only one case, therefore no definite conclusions can be drawn though both methods are undoubtedly of value. The importance of exact anatomical reposition in the operative treatment of fractures around a joint is well recognized. In an extremely interesting article, Lambotte describes his methods of maintaining position and driving nails from the joint surface into the bone. In his hands such a procedure yields excellent results, but one question the advisability of its universal application. For the delayed or non-union group of cases operation is recognized as the procedure of choice. Various methods are described, the boring operations (Boppe, Carter, Felsenreich) being the simplest and, in many cases, apparently very effective. Massive bone grafts, bone transplants, chip grafts (Roxle, Hansen, Juvara, Drasin and Osipovskij) and the use of boiled bone or os purum (Orell) are advocated, all of them supported by the evidence of some successful cases and all of them of unquestioned value in individual instances. When a defect must be bridged or a rigid support is needed the massive grafts and transplants seem to give the best results.

For compound fractures, operation is recognized as essential and is universally urged as an emergency procedure. Opinions differ, however, as to what should be done after the initial débridement. On the basis of a careful study of 236 cases treated at the Massachusetts General Hospital, Daland advises against internal fixation. He believes that when the compounding is due to direct trauma, radical measures, viz., wide débridement, thorough irrigation with from 4 to 10 qt of normal saline solution, and the removal of small bone fragments unattached to periosteum, are indicated, and that though some wounds may be closed the larger ones should be left open. He does not approve of loose closure nor of partial closure with drainage. It is interesting to note that the use of strong antiseptics is being discarded and replaced by mechanical cleansing (Besley). Boerema presents experimental evidence to show that antiseptics actually delay callus formation. Eliason feels that it is safe to apply a plate after thorough débridement followed by drainage of the wound. He gives no statistical support for his opinion. The general impression gained from reading the material is that wounds compounded from within and those compounded from without but seen within six hours may safely be sutured after thorough débridement and mechanical cleansing, and that those with marked soft-part injury and soiling should be left open regardless of the time interval.

EXPERIMENTAL WORK

With the re-awakened interest in the clinical aspects of fractures there is also an augmentation in experimental work. Various problems met with in the hospital wards are being solved in the laboratories in many countries. The problem of fracture healing and the factors that may influence it and therefore have a bearing on the vexing question of delayed union and non-union is being investigated in various ways. Theoretically, the repair of bone may be influenced either by systemic or by local factors. Work is being done along both lines of approach. An excellent summary of the modern conception of fracture healing is presented by Murray, who bases his statements on the findings of work done in his own laboratory and elsewhere. Murray discusses the problem from the standpoint of its clinical application, leaving out of account points of purely academic interest. His article presents clearly the theory held by the physicochemical school of thought which has received wide recognition in this country as well as in parts of Europe. It is recommended to the reader's attention.

In order to establish a basis for the comparison of experimental results obtained by varying systemic factors, certain investigators have attempted to determine the normal healing rate in experimental animals. Lindsay presents the findings of over 2,000 observations of the normal healing rate in rats, and Peyton, Copenhagen and Arey report determinations of this rate in rabbits. Both articles are based on work in progress, not final results. Howes and McKenna, of Lindsay's laboratory, discuss the effect on fracture healing in rats of diets rich in casein. They find an acceleration in the healing process. The acidity or alkalinity of the tissues surrounding the fracture and its bearing on bone formation have been much discussed. Experiments have been done in an attempt to control the reaction of the blood and to study the results on bone repair. Selvaggi performed a series of experiments on rabbits, feeding them with normal, acid, and alkaline diets and giving intravenous injections of weak acid solutions. Potentiometric determinations of the pH of the blood plasma showed the presence of an acidotic state. Selvaggi concludes that in these acid animals there was a retardation of ossification and a diminished calcification of the callus. Moore and deLorimer reporting experiments on rabbits in which the diet was varied and careful determinations were made of the blood pH and the calcium and phosphorus content of the urine, show the influence of alkaline and acid balance by means of roentgenograms. They feel that their evidence "emphasizes the fact that for assimilation of calcium and phosphorus the chyme in the small intestine should be acid but for the utilization of these elements the tissue balance should be alkaline." This work would seem to require somewhat more definite proof than roentgenographic evidence of calcium deposit before it can be entirely accepted.

The influence of the endocrines on fracture healing has recently been investigated—prostatic hormones (Calef) sex hormones (Bankoff) adrenal cortex (Lucchese) parathyroid extract (Engel, Panaghi and Perina). All seem to increase fracture healing. Most of the work has been done on guinea pigs and while it is suggestive it needs further confirmation. Working on dogs, Heydemann found that injuring the hypophysis delayed fracture healing, a finding that has been confirmed by Nakamura and Tanaka.

The local problem in bone repair has interested many workers and is obviously of great clinical importance. As there is, unfortunately, a considerable difference of opinion among reliable investigators, no definite conclusions can be drawn from

the findings so far reported. The question of the local blood supply is the subject of considerable discussion. From a carefully controlled series of experiments on dogs, McMaster and Roome conclude that lumbar sympathectomy does not hasten, but tends to retard, bone healing, whereas venous stasis hastens bone repair. Also working on dogs, Colp, Karsbach, and Kluge found that periaxillary sympathectomy accelerated bone union. Key created marked venous stasis and found that this had no influence on the healing of defects or fractures in dogs. Obviously the answer is not yet reached. The injection of some substance at the site of the fracture to increase healing has interested investigators for some time. Key working with dogs, found that neither calcium phosphate calcium carbonate nor bone powder appeared to stimulate osteogenesis in a bone gap. Haldemann and Moore, working with rabbits, concluded that in normal healing of fractures calcium injections had no effect, but in delayed healing tricalcium phosphate seemed to help. Monocalcium and dicalcium and calcium glycerophosphate had no favorable influence. As 17 rabbits were used in their work (2 dying in the first week) only a few experiments were carried out with each of the different salts. It would seem that further work is necessary before the conclusions can be accepted as final. The use of calcium in the form of bone has been suggested and utilized in experiments carried out by Dalnelli, in which rabbits were fed with fresh ground bone in addition to the regular diet. From X-ray and histological examinations, Dalnelli concludes that the ground bone speeded up the healing. Because of the known variability of bone healing in rabbits, further experimental work appears to be indicated.

In all discussions of bone formation and repair the question of the specificity of the bone cells is brought up. Leriche reports experiments done under his direction which he believes show the capability of certain tissues to form bone without the presence of periosteum or pre-existing osteoblasts. Further additions to our knowledge of phosphatase and its action are presented by Timpe in his report of investigations on the physiology of bone repair. Interesting clinical observations have been made by Timpe and Reich, who found that out of 500 fractures, only 1 case showed glycosuria, 10 per cent of the cases of fractures of the extremities showed hyperglycemia, as did 35 per cent of the cases of head injuries. Timpe and Reich believe that the elevation of the blood sugar may be due to the action of the autonomic system on the metabolic centers.

Another problem of great clinical importance is that of the relation of metals to fracture healing in an attempt to find the optimum material for fixation. Obviously such material should cause no delay in the ossification process if possible, and should be rigid enough to hold the fracture ends. The action of various metals has been investigated by means either of tissue culture or of animal experiments. Tissue-culture experiments are cited to show that the most suitable metals for bone repair are duraluminum and types of stainless steel (Menegaux, Odiet and Moyse, Okkels). These are interesting and suggestive. Cretin and Pouyane, in work on rabbits, found that all metals were more or less toxic, but that some were tolerated better than others and that magnesium and calcium apparently stimulated callus formation. Verbrugge also advocates the use of magnesium. He believes that it is slowly absorbed and does not tend to diminish callus formation. Ivory as a fixation material is recommended (Knobloch). In a short clinical report, Masmonteil discusses the results of the use of oxidizable and non-oxidizable steel. He prefers non-oxidizable steel because, in removing plates and screws in 2 instances, he found the screws of non-oxidizable steel firmly embedded, requiring force to unscrew them, whereas the screws of oxidizable steel were loose and could be easily withdrawn.

Before taking up specific fractures there is one more group of articles which should be mentioned, namely, those dealing with the general problem of fractures in infancy and childhood. Because of the possibility of growth disturbance due to injury of the epiphyseal line, and because of the tremendous potentiality of restitution during growth, certain principles of treatment differ in the child from those in the adult. Pritchard and Smith claim that, in the main, fractures in the newborn should be treated without splints of any kind. They base their opinion on 2 cases which they present. This is not a universally accepted theory, however, as most authors believe that some form of appliance to prevent motion and pain to the infant should be devised (Simoes). In older children the effect of growth on malposition is amazing and encouraging. In a study of 5000 cases followed by X-ray examination, Gangler found that persons with a fractured bone in a phantastically bad position between the ages of one and six years may show no trace of the fracture, either anatomically or functionally, thirty years later. In epiphyseal separations, however, this is not true. Of 310 cases summarized by Bergenfeldt, growth disturbance occurred in 5 per cent. Among 110 cases Elhason and Ferguson found 3

of premature ossification, in all of which perfect anatomical reduction had been obtained. In 133 per cent of the entire series the results were poor or only fair. The consensus of opinion therefore is that in long-bone fractures conservative rather than operative treatment is indicated, though axial deviations and angulations should be more carefully corrected than overriding (Beekman, Walking), and that in epiphyseal separations perfect anatomy should be striven for though growth disturbance may result in a small percentage.

PART 2

FRACTURES OF THE SHOULDER GIRDLE

It seems agreed that in fractures of the clavicle the main object is to provide some form of fixation which will give the requisite upward and outward traction while allowing use of the upper extremity. To attain this object modifications of the "T" splint, one with an outward curving crossbar (Massabau and Guibal) and one with a "T" splint incorporated in a plaster jacket (Baker), have been used. Wires put through the acromion process and fastened by traction to a metal band incorporated in a body plaster, leaving the shoulder joint free is another (Filippi, Bugliari). It is interesting to note that Inclán feels that adequate reduction is essential even in fractures of the clavicle in children. He advocates a modification of the Sayre dressing with a plaster-of-Paris re-inforcement immobilizing the shoulder and the elbow. He is of the opinion that if good position cannot be obtained by non-surgical methods operation should be performed. This is not in accordance with the accepted belief that most clavicular fractures give functionally good results especially in children, even when the anatomical position is relatively poor. For the more severe types of fracture operative procedures with the use of metal bands or nails are described (Dupuy de Frenelle). On the other hand, Duttweiler in an extensive discussion of the question, concludes that it is difficult to decide whether purely functional treatment alone or associated with the Boehler type of splint is better. There is an interesting case of acute osteomyelitis following a closed fracture of the clavicle in a baby ten months old (Flemming). There is also an article on 3 cases of spontaneous fracture of the clavicle in syphilis (Conway).

With regard to fractures of the scapula there is very little material of interest with the exception of the description by Comoli of a sign which he considers pathognomonic of fractures of the body of that bone. This sign is a swelling almost

reproducing the form of the scapula which appears shortly after the injury and lasts for from ten to fourteen days. Comolli believes it is due to hemorrhage, both anterior and posterior to the bone which is limited by the aponeurosis. He suggests that when it does not exist where there are definite fractures either the larger blood vessels are not injured or the soft parts are so torn that the blood is not confined by the aponeurotic boundaries. Since its description by Comolli it has been reported by others (Cengiarotti, Pervès).

The accepted treatment for fractures of the scapula is conservative—massage and rest—but it is interesting to note the opinion of one author who believes that operation should be done if conservative means do not replace the fragments (Camavero). The advisability of such a procedure except in the most unusual circumstances is questioned as functional results are usually good in spite of imperfect anatomy.

There are a few interesting case reports (Pervès, Hutchinson, and Flüppel).

FRACTURES OF THE SHOULDER AND HUMERAL SHAFT

Fractures of the upper extremity of the humerus are not uncommon. Of particular interest is an article by Howard and Ekemer discussing the position of the fragments and presenting experimental evidence obtained with the use of a so-called "phantom model" in which the muscle pulls were provided by elastic bands. In an analysis of the reduction of fractures of the upper humeral extremity it was found that downward traction with simultaneous lateral right-angled traction on the upper end of the lower fragment gave an exact position. Traction in the classical abduction position or in Boehler's position (abduction to 70 degrees, mild-rotation, and 30 degrees forward in the frontal plane) did not. They have tried the method on patients with success in those instances where the biceps tendon was intact. The after-treatment consisted of the use of a sling and swathe and early motion. The reader is referred to the extremely interesting article for details.

There are many articles discussing methods of abduction and describing various types of splints to provide it (Rapaccini, Fehsebreich) but it is interesting to note the number advocating the use of a simple sling and swathe with early active motion as the preferred treatment (Cotton and Morrison). However for cases in which there is gross displacement some authors feel that other more drastic methods are necessary. The transfixion of the humeral head by a boneawl during

manipulation is advocated (Anderson). Traction by means of a wire through the olecranon with the arm held in an abduction splint is also suggested in some cases (Valls and Girardi). Open reduction with a nail driven from the shoulder into the fragment and removed after from two to three weeks is described by Frey. Some interesting case histories are reported (Hayer Thieroll, Cazzuli). The impression gained is that the general tendency is away from universal abduction of all fractures of the upper end of the humerus, and that in many cases, especially in the impacted fractures, the sling and swathe method with early active motion is to be preferred.

One of the most difficult types of injury coming to the surgeon is the fracture-dislocation of the shoulder since closed reduction is rarely successful and operative interference usually necessary. The question as to the advisability of removing the head fragment or replacing it is a matter of discussion. Frutiger gives the following statistics: "Roemer resection 15, very good results 28 per cent, open reduction 23, very good results 56 per cent. Mason resection 21, very good results 42 per cent, open reduction 23, very good results 70 per cent." Sahadani on the basis of his experience in 2 cases in which the head was replaced and a review of the literature agrees that reposition of the head offers the best results. Frutiger suggests that in the cases of old persons it is sometimes wiser to leave the fragment alone than to resort to an operative procedure when closed reduction fails. The consensus of opinion seems to be that removal of the head gives almost uniformly poor results and that replacement is preferable. Greeley and Magnuson have published an interesting article on dislocations of the shoulder complicated by spontaneous tendon injury with fracture of the greater tuberosity. The tendon injury is evidenced by difficulty in abduction and external rotation after bony union has occurred and occasionally in late cases, by atrophy of the supra-scapular muscles. Greeley and Magnuson believe that operation for repair of the tendon should be performed as soon as the diagnosis is made.

There are 2 interesting series of case reports, one of 41 cases (Rogers) and one of 69 (Smythe). In both series hospitalization is advocated when possible with traction preferably of the skin type and with operative reduction when closed reduction is not successful. Overpull is regarded as particularly dangerous in the transverse type of fracture. A form of traction, a modification of the Russell method for fractures of the humeral shaft, is described by Blum and the reader is referred to the original article for details. The

difficulties of treating non-union, should it occur, are shown in a valuable article by Sever with 5 illuminating case reports. On the basis of his experience, Sever advocates the massive or onlay graft in such cases followed by a sufficiently long period of fixation to insure union. Other cases of non-union are reported (Auborg and Rishworth).

FRACTURES OF THE ELBOW JOINT

When there is a wealth of material on a certain type of fracture it may be inferred either that there is a new method of treatment which is awakening universal interest or that the results are universally so poor that many different methods are being tried. Both of these hypotheses seem to apply to supracondylar fractures of the lower end of the humerus. The anatomy around the elbow joint, especially the growth centers, is so complicated that many authors feel it necessary to include a general description of it in their articles (Cohn, Elason and McLaughlin, MacNab). One of the most important of these is an article by Pellegrini who gives a very careful description of the anatomy of the osseous components of the elbow joint as shown by roentgenographic studies of injected specimens of the developing epiphyses. The treatment of supracondylar fractures is of 3 main types. First is the closed method of reduction and immobilization with the forearm in a position of pronation to prevent the "gunstock" deformity, advocated at the Boehler clinic (Beck, Regele). Thus, however, is not universally accepted and it is suggested by some that if the fragment is displaced internally the forearm should be pronated, but if it is displaced externally, supination is necessary (Boppe, Boppe and Chomet), which seems logical. All authors agree that reduction is essential as soon as possible, and that the position of flexion does not reduce but merely maintains the reduction (Elason and McLaughlin, Finochietto and Llamas, Bates, MacNab). However, if reduction cannot be accomplished by closed methods, the second form of treatment, skeletal traction by means of a wire through the ulna, is advised (Easton, Zeno, Strauss, Carl, Coenen). By means of overhead traction as described by Zeno circulatory disturbance is controlled. Excellent results are reported. The third method of therapy is operation, advised for cases in which reduction cannot be effected by closed methods (Leveuf and Godard). This probably should be considered only as a last resort. Most of the reports are based on fractures in children. Fractures of the lower part of the humerus in the adult are discussed very little. One author advocates early operation with replace-

ment and fixation of the fragments when possible (Felsenreich). A tongs or caliper is described for fractures of the lower end of the humerus (Easton). For fractures of the external condyle early open reduction is usually considered necessary (Sorrel and Dulot, Speed and Macey). Removal rather than replacement of the condylar fragment is advocated by some (Lee and Summey) on the basis of 22 cases of their own and others in which good functional results were obtained. Removal is advisable particularly in late cases in which placement is rarely successful. Separation of the internal epicondyle with displacement of the fragment into the joint usually requires operation. There is an interesting report of 4 such cases in which reduction was effected successfully by closed manipulation (Roberts), but, in the main, the discussion lies between operative replacement and removal (Zeno, Ottolenghi), with good results reported after the use of each method. The open reduction with fixation of the fragment is usually technically simple and tends to restore the soft-part attachments.

Fractures of the radial head are discussed largely from the point of view of treatment. For fractures without displacement conservative treatment is recommended, either with early motion of the joint (Beccari) or with plaster (Bay). The majority of writers favor early active motion as hastening the restoration of function. Plaster seems unnecessary as there is little or no tendency for the fragments to become displaced. In comminuted displaced fractures the fragments should be removed—in most cases preferably the entire radial head (Beccari, Bay). It is interesting to find the logical suggestion of wrapping the stump with fascia to prevent regrowth (Pfaff). One author advocates reduction of fractures of the radial head and neck in children by closed maneuvers (Patterson). This is undoubtedly advisable where possible.

Fractures of the olecranon are as a rule sutured (Coletti, Szucs). There is an interesting description of a method of fixation by the use of a part of the triceps tendon (Rombold). One author maintains, however, that unless there is marked comminution an early return of function is obtained by daily massage and active motion (Eliot). Spasokukochij states that the best position for an unoperative immobilized olecranon fracture is a right-angle position in which the triceps muscle is well-relaxed. The consensus of opinion is that in all cases with wide displacement operation results in the quickest and surest restoration of function. The so-called fractures of Monteggia, i.e., fractures of the upper third of the ulna associated

with dislocation of the radial head, have aroused much attention. Certain authors (Incisán, Volynskij, Loccioni, Cunningham) feel that immediate closed reduction can be successful. Frequently however it is not successful and operation is necessary with fixation of the ulnar fragments and repair of the orbicular ligament (Lambotte, Incisán). Recognition of the dislocation of the radial head is of great importance as it can be easily overlooked and frequently requires operation. Various interesting cases reports are given (Gunchard, Simeon, and Fruchard).

FRACTURES OF THE FOREARM, WRIST AND HAND

Fractures of the forearm, wrist, and hand present no particular difficulty in diagnosis, the anatomy is well-known, but the treatment of such fractures is the subject of considerable discussion particularly in view of the recent development of the wire methods. Closed reduction with the application of plaster while traction is being maintained manually is advocated (Oberdinner, Miller). This is not always successful however and various methods of introducing wire through the bones above and below the fracture and incorporating the ends in plaster are suggested (Oberdinner, Clayton, Roger Anderson). Open reduction with internal fixation still has its advocates (Ryser, Sowles, Babbin, Nicolini). All present careful statistics, and the choice of method, as for fractures elsewhere, must depend on the type of the fracture, the patient, and the doctor. Fractures of the lower third of both bones in children can usually be corrected by manipulative reduction (Leventhal, Gillies). Colles' fractures should be reduced and immobilized with the wrist in flexion and ulnar deviation. The period of immobilization varies among the different authors from a short period of from ten days to two and one half weeks (Lewis, Cabron) to from six to ten weeks (Haggart, Cooper). Obviously it must depend on the comminution of the fragments and the tendency to slip. Spontaneous tear of the tendon of the extensor longus pollicis is reported to have occurred two and one-half weeks after a typical fracture of the radius (Schlechter). There is an interesting discussion of the history, mechanism and treatment of the unusual type of fracture of the anterior lip of the radius with forward subluxation of the carpus (Rosenau and Adamsternau). They believe that semiflexion is the best position for maintenance of reduction.

Fractures of the scaphoid have always presented a problem, first because of the difficulty of diagnosis by ordinary X-ray examination and

second, because of the difficulty in obtaining union. Adequate roentgenograms made in various positions are urged (Mouchet, Winkler and Miller, Schenk). Closed methods are advocated in all simple cases with the use of plaster for from eight weeks to three, four or six months (Winkler and Miller, Mouchet, Hoffmeister, Schenk, Westermann, Soto-Hall and Haldeman). For cases of pseudarthrosis, some surgeons advocate removal (Paal, Winkler and Miller, Mouchet). Others, who claim that removal results in weakening of the wrist, advocate either a boring operation (Westermann, Soto-Hall and Haldeman) or bone grafting (Murray, Burnett). Good results from both operative methods have been reported, but the series of cases are not yet large enough to permit a decision as to the advantages of one over the other.

Isolated cases of fractures of the other bones of the carpus are described (Edelmann, Padula, and Milch).

Metacarpal and finger fractures present problems. Wire traction through a finger is suggested as a useful method (Haggart, Drvnogonski and Rybuskin). It is of value for fractures in which the bone ends tend to become displaced or to override.

FRACTURES OF THE SPINE

Because of the marked mobility of the cervical spine dislocations and subluxations occur here more frequently than in other parts of the vertebral column. The reader is referred to a careful analysis by Mach of 48 cases of neck injuries seen in the period from 1921 to 1931. Smaller series of cases have been reported (Loni, Umlauf, and Moorehead). To the treatment by hyperextension and immobilization nothing has been added except an ingenious device described by Stooker whereby the extension is obtained by means of an adhesive plaster trough and an air mattress. The method is of particular value in cases in which cord injuries require unusually careful nursing, as the air mattress helps to prevent decubitus.

Injuries elsewhere in the spine have recently awakened considerable interest. Since the more careful X-ray technique has been developed, diagnoses of compression fractures are becoming more sure. On the basis of 170 cases studied roentgenologically Rhys believes that Kummell's disease is undoubtedly the result of a previously unrecognized compression fracture. The same opinion is held by the majority of writers on the subject (Paal, Watson-Jones, Ansturt and Got). The importance of an accurate early diagnosis for the prevention of this unfortunate end-result is

stressed by most writers both in America and in Europe. The principles of treatment now generally accepted for fresh cases are hyperextension followed by immobilization. The methods employed are of various types. The 2 most widely known are the procedure described by Watson-Jones and that of Rogers. In neither method is anesthesia employed. In the procedure followed by Watson-Jones the patient lies in an extended position between 2 tables of unequal height while a plaster cast is applied. He is allowed out of bed within a week and exercises are insisted upon to strengthen the back muscles. In the Rogers method, hyperextension is obtained by the use of a convex frame on which the patient lies supine. Reduction is accomplished in from fifteen to sixty minutes and a plaster cast applied. In all cases in which the fractured vertebra are in the anterior convexity of the spinal column the patient is allowed out of bed early. There are many papers discussing both methods (Cato, Wiley, Petrov, Helsenreich Kraus).

Various mechanical devices for obtaining hyperextension and simplifying the application of the plaster are described. Procedures without apparatus are also suggested. One of the latter is manual reduction by force, the patient being sawed between 2 tables a sand bag placed over the vertebra, and the bag struck by blows (Pirmley). Profound anesthesia is used. This method seems unnecessarily dangerous, especially as the more conservative means yield very satisfactory results. Some surgeons (Rogers) believe that following the removal of the plaster jacket a brace should be worn whereas others regard a brace as unnecessary especially if adequate exercises have been systematically performed (Watson-Jones, Tucker). With such authorities as Watson-Jones and Rogers disagreeing on this point, no definite conclusion can be reached.

In a valuable article on the urological complications following spine injuries Connors and Nash state that they are firmly convinced by their large experience that catheterization is largely responsible for a high percentage of mortality and should never be done in such cases but that overflow drainage of the bladder should be used. Moffat has written an interesting article on the pathological fractures of the spine associated with disorders of calcium metabolism. He believes that such injuries are not uncommon, that they present a definite clinical picture characterized by gradually increasing fatigue referred to the spine, then by a sudden sharp localized pain following a sudden strain, and that the earliest constant roentgen finding is a pronounced biconcave shape

of the intervertebral disk. He advocates a brace with ambulatory treatment to prevent further loss of calcium from disease.

FRACTURES OF THE PELVIS

Fractures of the pelvis have received little attention in the recent literature, but there are 2 or 3 methods of treatment which are of interest. Haggart suggests treatment by immediate traction on the lower extremities and the application of bilateral boots extending from the knee to, and including the foot and connected by a cross piece to maintain the legs in moderate abduction. He states that this method allows rigid fixation of the pelvis while permitting the patient to sit up in bed. For cases without gross displacement he advocates the use of the swathe attached to the overhead Balkan frame to suspend and approximate the pelvis. He allows the patient to walk with or without crutches from the eighth or tenth week. Papik feels that reduction and immobilization can be accomplished satisfactorily by means of the Jones or Anderson splint with the use of the leg on the sound side as a rigid support for the maintenance of traction. He maintains immobilization for about four weeks. Undoubtedly fixation, especially in the first days, increases the comfort of the patient, but as neither Haggart nor Papik gives follow-up results or case studies the methods cannot be adequately evaluated. Godard and Bonis suggest operative treatment for severe pelvic injuries. They advocate the introduction of a long wood screw into the head of the femur through the greater trochanter for traction on the acetabulum. They report 2 cases with roentgenograms showing satisfactory reduction. The leg is maintained in plaster which is removed with the screw when satisfactory healing has occurred.

Schloeffel discusses fractures of the antero-superior spine of the ilium, of which 4 were seen in the clinic of the University of Leipzig. He states that 57 cases have been reported in the literature. The diagnosis is easy. The fracture is the result of a sudden active or passive pull on the sartorius and tensor fasciae lata. It is manifested by local swelling, tenderness, and crepitus. Frequently the torn off fragment can be palpated. Schloeffel advises conservative treatment with rest of the leg.

FRACTURES OF THE FEMUR

Fractures of the neck of the femur. For many years the problem of the patient with a fracture of the neck of the femur has been one from which most physicians have turned with a shudder

as it has seemed almost unsolvable. With Whitman's method of reduction and immobilization there was a sigh of relief and with a widespread acceptance of this method it seemed for a while as though the problem had been at least partially solved. That this was not true is shown by the figures published recently and that there has been a recrudescence of interest is manifested by the amount of material published on the subject in the past two years. The re-awakened interest has been due undoubtedly in large part to the possibility of obtaining good internal fixation as by means of the Smith-Petersen nail, but the closed methods still have their warm adherents. That the problem is a real one is shown by the fact that the mortality is still high. Of 100 cases reported by Howard and Christophe, death occurred in the hospital in 19 and of 631 cases reported from the Mayo Clinic by Henderson, 14.6 per cent were fatal. Moreover the patients who survive are by no means assured of a good functioning extremity. In Henderson's report of the end results of 16 cases with follow up results, 66.6 per cent showed good bony union, 25 per cent failure. The MacAusland Clinic reports bony union in 58.3 per cent of 91 cases studied, fibrous union in 13.3 per cent, and non-union in 28.4 per cent. Zur Verth states that in fractures of the medial portion of the neck non-union is to be expected in one-third of the cases, in the lateral portion one fourth. It is therefore not to be wondered at that attempts are being made to better the results.

One of the most important contributions to the understanding of the situation is that by Pfenister on the pathological changes occurring in the head fragment which he describes as aseptic necrosis. This article deserves careful study. With the improved understanding of the pathology improved understanding of the actual position of the fracture has come about through the efforts of George and Leonard who made lateral roentgenograms by means of a curved cassette. It has been felt by many that adequate reduction is essential for healing of the fractures. To obtain such reduction the position of the fragments must be recognized. This is not always possible from stereoroentgenograms taken in the anterior position. Harnach and Stimson demonstrated this fact in a series of roentgenograms, but they take their roentgenograms with a cassette placed above the iliac crest and the X-ray tube at an angle at the foot of the bed.

With recognition of the deformity reduction can be accomplished by various methods. Cotton advocates the Whitman procedure with the addi-

tion of impaction by blows on the greater trochanter. Leadbetter describes a procedure of his own in which the knee and hip are flexed and traction is exerted upward from the table. The leg is then internally rotated and circumducted into the abduction position. If after this procedure, the foot maintains its upright or slightly internally rotated position when held in the palm of the operator's hand, Leadbetter concludes that reduction has been obtained. Fixation by means of a plaster spica of either the long Whitman type or the short bilateral type is advocated by Campbell and MacAusland. Judet has modified it to allow some knee motion. Ray advocates the use of the Wilkie plaster boot. Traction and sequestration as a method of treatment has few advocates. Of 97 cases reported by Glaser in Switzerland, the results were poorest in the 40 per cent in which skin traction was used. In this country Howard and Christophe treated 28 cases by traction and 71 by plaster. They draw no conclusions, but state that of the cases treated by traction, bony union resulted in 13 and non-union in 11. They do not give percentages and their report is based on 60 cases of intracapsular fractures followed for one year or more.

Interesting groups of cases of the latent or unrecognized fracture in valgus, in which the prognosis is always good, have been reported (Monchiet, Ellen, and Zeno).

In summarizing it may be said that the weight of evidence indicates the necessity for accurate recognition of the displacement of the fragments by means of roentgenograms taken in a plane, adequate reduction by manipulative means adapted to the individual case and maintenance in well-fitting plaster.

Operative treatment of fractures of the neck of the femur. There are a number of methods of open treatment in common use at the present time. One involves a wide incision with reduction of the fragments under direct vision and their fixation by one or another means, the other a closed reduction with the insertion of internal fixation material through the trochanter. The use of grafts in the former method has its advocates (Allbee and Patel) but most authors prefer a stronger material such as the Smith-Petersen nail. Lambotte prefers nails driven from the head fragment into the shaft portion of the neck. His article on transarticular fixation is of great interest. There are many however who regard the wide exposure as both difficult and unnecessary, and various methods by which a nail can be driven in through a small incision over the trochanter have been described. Foremost among the latter is Sven Johansson's

method of driving a perforated Smith-Petersen nail over a previously inserted wire. Most of the similar methods require elaborate and ingenious apparatus for the insertion of wires and nails (Wescott, Díaz, Moore, Sven Johansson). All authors unite in stressing the need for X-ray control during the procedure. At this time there are not sufficient follow-up results on which to base any accurate conclusions, but the Smith-Petersen operation has the obvious advantage of accurate reduction under direct vision. However, the operative technique is manifestly difficult in inexperienced hands and should not be attempted except by those with adequate training and assistance. In a few years a study of the end-results of the cases treated by the different methods will be most valuable.

Most authors believe that one of the great advantages of internal fixation is the ability to mobilize the leg and avoid the long, disabling period of bed rest in a cast. They agree, however, that full weight-bearing is not safe until bony union has occurred or for at least a period of six months. Palmer has published a very valuable article on the histological findings in the case of a patient who died from unrelated causes barely three months after an operation for fracture of the neck of the femur in which a nail was inserted. He presents many photographs showing the absorptive process occurring in the head and the presence of beginning bony union along the neck. He concluded that regenerative processes of the necrotic head were taking place as the result of a revascularization from the capsular periosteum. He believes that rustless steel does not seem to have any untoward effect on the process of repair as there was living bone in close proximity to the pin and the absorptive processes were no more evident in the neighborhood of the nail than elsewhere.

For cases of non-union, reconstructive operations of different types are described (Marques, Ettorre, and Lexer).

Slipping of the upper femoral epiphysis. Cases of slipping of the upper femoral epiphysis belong in a group by themselves. Trauma as a cause has been the subject of considerable discussion. Haberler believes that disturbances of the glands of internal secretion are primarily responsible. In Wardle's opinion, the main etiological factors are endocrine disturbances and trauma, both causing a weakening at the metaphysis which allows the epiphysis to slip under the influence of weight-bearing or muscular action. According to Sever and Cotton, neither an endocrine disturbance nor an injurious process such as has been suggested

by some can explain cases in which adequate trauma has occurred.

For the mild cases, Sever, Wardle, and Waldenstrom recommend rest in bed with traction. Waldenstrom believes that the circulation of the ligamentum teres is of great importance and advises strongly against manipulative reduction because of the danger of injuring the structure. For a case in which there is a gross displacement he advises open reduction with great care not to disturb the circulation through this ligament. Sever recommends manipulation or open reduction with the insertion of a Smith-Petersen pin. He does not approve of the drilling operation. All writers agree on the need for prolonged rest from weight-bearing. Wardle feels that anatomical reduction is far less important than conservative treatment with an attempt to maintain free motion at the hip. He states that prolonged immobilization in plaster following manipulation may give beautiful roentgen findings but very unsatisfactory functional results.

Fractures of the shaft of the femur. Interesting statistical studies of cases of fractures of the shaft of the femur to which the reader is referred for details are one by Prey and Foster of 146 cases with a careful analysis of treatment, one by Holscher of 186 cases with a report of the follow-up results after at least two years in 110 cases, and one by Weyll and Wallace of 285 cases with no correlation between treatment and results.

Methods of treatment differ considerably, depending upon the age of the patient. For children up to the age of five years many authors prefer the overhead suspension or Bryant traction (Widenhorn and Faller, Prey and Foster). It has been suggested that closed reduction of the fracture with the application of a plaster spica in the "frog position," i.e., with the leg markedly abducted and externally rotated, is more satisfactory in these cases (Lasarre, Schmid). This would make the nursing care of these patients easier and their hospital stay shorter. For older children, reduction and maintenance in plaster has its advocates (Widenhorn and Faller) or some form of traction—Russell (Prey and Foster), Kirschner wire (Barros). Unlike most surgeons, Widenhorn and Faller believe that open reduction with internal fixation is justified for fractures that are difficult to reduce or hold. Gross interposition of soft parts seems the most logical reason for operation as children tend to correct displacement well. For fractures of the femoral shaft in the adult there is an overwhelming preference for skeletal traction of some kind with

increasing use of the Kirschner wire (Decker, Clavin, Zarroste). A modification of the method is suggested by Roger Anderson in his well-leg traction apparatus. The reader is advised to consult Anderson's article for details. The apparatus allows the patient out of bed, but requires careful adjustment to obtain and maintain good position.

In France there has been an interesting discussion on the operative procedure indicated in these cases. It is felt that skeletal traction is the method of choice in most instances (Fredet, de Frenelle) but there are cases in which interposition of soft parts, faulty union, or non-union requires operative intervention. Soupault advises the use of the Kirschner wire in the lower fragment with strong pull for several days before operation to facilitate reduction of the fracture at the time of operation. He advocates the anterior approach in preference to the lateral approach as it gives a better exposure with much less bleeding. Maumontel also approves of the anterior approach and recommends the Trendelenburg position to facilitate reduction. Fredet advises either the anterior or lateral incision, depending on the position of the fragments, and wide exposure with the application of 1 or 2 plates. De Frenelle feels that operations for malunion of the femur are particularly dangerous and difficult and should be done only on young and vigorous persons, with previous transfusion and with a donor at hand during the operation. It is interesting to find no discussion of this question in any other country. Operation performed skillfully with adequate internal fixation should result in accurate reposition of the fragments and rapid disappearance of soft part pathology.

There are some interesting case reports (Bohrer, Lee and Gallagher, Gucci, and Murphy).

FRACTURES OF THE KNEE JOINT

With regard to fractures of the knee joint there have been few contributions of outstanding originality. The general principles which have been recognized for years have been reiterated. For fractures of the patella it is generally agreed that in cases with wide separation of the fragments operation must be done if possible. Allen presents 50 cases, 38 of which had adequate follow-up reports. Of 37 which were operated upon, perfect results were obtained in 28. In other reports of series of cases preference is expressed for peripatellar suture with wire or silk (Kasumov) or living suture through the patella (Rosov) or catgut (Matarnau). In all, careful suture of the expansion as well as of the bone is advised. Adequate repair

allows early motion with rapid restoration of function. Two articles discuss longitudinal fractures and feel that they must be carefully differentiated from bipartite patella by means of roentgenograms (Galli, Freudenthal, and Peacock).

In the articles on fractures of the femoral and tibial condyles the discussion deals primarily with closed and operative methods. Veller feels that in fractures of the femoral condyle open reduction is indicated to restore the normal architecture unless anatomical replacement can be obtained by closed methods. He advises fixation by means of screws. Most of the discussion, however, is in relation to the fractures of the tibial condyle. From a study of 40 cases Eliason and Ebeling conclude that closed methods of treatment, via manipulation and the use of molded plaster splints for six weeks, are justified. Others regard wire traction as a satisfactory method of treatment (Plotet, Masmont). Operation, on the other hand, is strongly advised for cases where anatomical position is not obtained by closed methods, with fixation of the fragment by screws or bone pegs (Cubbins et al., Becker) or by an osteoplastic graft (Lenormant). Leriche believes that it is necessary to establish the joint silhouette but thinks that the use of wire traction may lessen the number of cases in which operation is required. That there may be injury to the meniscus, concomitant with marked depression of the condyle is suggested by several of the authors who feel that in such cases operation is essential (Becker, Cubbins, et al.). Among several interesting cases reported was one in which a tear of the condyle was caused by the attempt to kick a football (Dorance). For fractures of the tibial spine removal of the fragment is advised (Mecotti, Venable). In a case reported by Venable the crucial ligaments were torn but there was no resulting instability. Moreau reports an interesting case of fracture of the tibial spine, unrecognized for a year presenting only slight limitation of flexion, considerable muscle atrophy, but no locking and no pain.

Of the articles on soft part injuries around the joint, the most important is by Dunn. In 355 cases Dunn found that the ratio of injuries of the internal meniscus to injuries of the external meniscus was 3:6:1 which is much lower than the ratio usually reported. He advises closed treatment for most crucial injuries. It is generally agreed that operation is indicated in tears of the meniscus with persistent symptoms (Henderson, Kahna). Burman feels that there can exist degenerative changes in menisci with fracture and with little or no trauma. He advocates the use of the arthroscope to establish the diagnosis. Inasmuch

as wide exposure of a knee joint by a skilled surgeon allows not only thorough exploration but whatever therapy is indicated, the advantage of the arthroscope is questioned

FRACTURES OF THE SHAFT OF THE TIBIA AND FIBULA

Most of the recent articles on fractures of the shaft of the tibia and fibula have dealt with the application of skeletal traction in some form. The consensus of opinion is that simple reduction and maintenance in plaster without some form of traction do not succeed in a large majority of cases. The methods of applying traction are numerous. Mole-skin adhesive straps incorporated in the plaster cast have one advocate (Papik). The use of the Kirschner wire with a Braun splint (Harnett) and of 2 wires incorporated in plaster, as recommended by Boehler, has been described. Marique, who reports 100 cases, and Iljan and Epstein, who report 135 cases, also prefer the Boehler ambulatory method. Zeno regards the distal wire as superfluous and has modified the method in 7 cases by using a single nail through the upper end of the tibia and plaster with satisfactory results. West, Anderson, and Becker advise skeletal traction, preferably with 2 wires or pins and plaster.

Numerous articles describing various types of apparatus for the application of the pins and maintenance of traction while the plaster is applied have been published (Roger Anderson, Griswold, and Sapiro). Turnbuckles to hold the wires apart are also described (Bailey, Mathieu). Miller incorporates the wires in plaster and then slits the plaster and wedges it apart with spreaders to obtain the desired length. Open reduction is recommended only for cases in which other methods fail. From the reported material, the advantages of the double wire and plaster method, especially where hospital facilities are limited, are obvious. Aseptic technique, well-fitting plaster, but most of all, common sense in the application of the method, are of the utmost importance.

Interesting articles on the healing of fractures of the tibia with an intact fibula have been published by Regele and by Sommer. Regele believes that the possibility of a disturbance of the upper fibular joint should always be considered. Sommer claims that healing progresses more satisfactorily after fracture of the fibula and reports cases in support of his opinion. The consensus of opinion is that non-union of the tibia requires operation. Certain procedures recommended are implantation of the fibula (Schaich) and Beck's boring method (Boppe 3 cases). For the treatment of compound fractures of the tibia similar

methods have been advocated in France and in England—retention of the fragments by a bone clamp during the application of the close-fitting plaster and removal of the clamp after the plaster has hardened (Darfeuille, Simpson-Smith). Talbot advises maintenance of the position of the fragments with catgut if possible and the use of a Delbet plaster when this is feasible. Masmonteil reports a case of compound fracture in which a plate and a band were inserted with excellent results. Interesting articles on fractures of the shaft of the fibula caused by muscle pull have been published (Faber, Scherf).

FRACTURES OF THE ANKLE JOINT AND FOOT

That there is general dissatisfaction with the results obtained in the more severe types of fracture around the ankle joint is evidenced, first, by the discussion of the need for early accurate reduction (Henderson and Stuck, Miller, Murray, Barancevic and Zolondz, Delchef), and second, by the description of various operations for the improvement of malposition. Careful diagnosis of the deformity is urged to insure the recognition of separation of the tibia and fibula with resulting widening of the mortise (Merle d'Aubigne and Smets). The need for accurate reduction is felt so strongly that some authors believe that if such reduction is not obtained by closed methods open reduction is necessary (Murray, Merle d'Aubigne and Smets, Lagomarsino, Zalewski). Should malunion occur, various corrective operations have been devised. Among these are wedge-shaped osteotomies, open reduction with astraglectomy, in some cases resection of the anterior lip, etc. (Laffitte, Masmonteil, Cotton and Morrison, Moreau, de Frenelle). Interesting case reports include one of injuries occurring around the ankle in parachute jumpers (Pisarnitchki) and one of lateral dislocation of the foot with fracture of the fibular shaft and posterior tibial lip (Sorrel and Henriot). Early and careful closed reductions when possible should remove the necessity for corrective operations later. When closed reduction fails or the corrected position cannot be maintained, early operation by an expert with adequate fixation seems to offer excellent and rapid restoration of function.

Fractures of the astragalus are usually caused by a fall from a height. Though not so common as fractures of the os calcis, they are less rare than was formerly thought (Divnogorsky). In cases with marked displacement the treatment is difficult as replacement of the fragments is usually impossible by closed methods. Three cases have been reported treated by wires incorporated in plaster.

Replacement of the fragment by open reduction should be attempted as soon as possible, with complete removal of the bone if anatomical position is not obtained (Divnogonsky Gibson and Inkster). Fractures of the posterior fragment of the astragalus must be carefully differentiated from os triquetrum. The treatment must be suited to the individual case.

Fractures of the os calcis present an extremely interesting problem. They have a notoriously poor prognosis because of persistent pain on weight bearing, and various means have been devised in an attempt to improve the results. There are 3 main schools. One believes in the closed method advocated by Boehler in which wires are inserted in the posterior part of the os calcis and in the tibia with a force pulling them apart to correct the deformity (Schinder Forrester Stewart, Hope Curston). The other favors immediate open reduction, recommending for fractures with downward crushing of only the articular surface a simple elevation of the surface with chip-graft supports (Lenormant, Sorrel) and for complete fractures through the body with upward angulation a wide exposure with reduction and osteomyelitis of some form with or without tenotomy of the Achilles tendon (Wertheimer Secor and Mitricky Gregoire and Couvelaire, Denny Leriche). It is difficult to evaluate the 3 methods as each is advocated by men of great experience.

The presence of accessory bones in the foot frequently adds to the confusion of X-ray diagnosis of injuries in this region. Gantz believes that there may be a traumatic separation of the os tibiale from the scaphoid with definite symptoms. Powers discusses fractures and general abnormality of the sesamoids of the great toe. Fractures of the base of the fifth metatarsal are not uncommon. In Japan they are frequent because of the wooden clog worn there. Miyake advises wire traction through the toe, but the more accepted treatment is conservative viz. the use of plaster of Paris or adhesive strapping. According to Saxl, some form of elastic compression bandage is all that is necessary. "March foot" or spontaneous fracture of the metatarsals due to prolonged or heavy exertion is mentioned (Osterland, Monteth). It is characterized by pain and swelling after no or only insignificant trauma.

FRACTURES OF THE JAW

Fractures of the jaw are being treated by oral surgeons more and more because of the increasing acceptance of intra-oral appliances. Nevertheless, in many parts of the world they still come into the hands of the fracture surgeon. The

literature on fractures of the lower jaw consists chiefly of descriptions of various types of dental splints. There is some difference of opinion as to the use of rigid intermaxillary fixation by means of wires (Dunning, Mack and Connolly, Heller Citolet) as opposed to elastic traction allowing a certain amount of motion (Moorehead, Krohn). In all articles careful mouth hygiene is urged because of the extreme danger of infection. For the same reason Dunning, Cavina, Dubov and Citolet believe that operation should be avoided when possible. Two types of operations are described—one, the insertion of Kirschner wires through the fracture site to hold the fragments in place without plaster or other fixation (Ipsen) and the other bone grafting in cases of loss of substance (Cavina). Dunning discusses the general principles of the fracture treatment (the use of cup splints, interdental splints, wiring of the jaws) on the basis of his experience in over 1,000 cases, the largest single series reported. Fracture dislocations of the lower jaw with displacement of the fragment are believed to require operation in most instances. The replacement of the fragment is considered of importance for the best results (Weismund, Kappels, and Reichenbach). However others advise its removal. (Manning Stromberg, and Schlaupp). A case of ecthyma comes following a fracture of the mandible is reported (Groba). Fractures of the upper jaw are less common than fractures of the lower jaw and in most instances can be treated conservatively (Jereck). Axhausen discusses the operation necessary for the correction of old deformities.

Fractures of the facial bones are not common. Very little is said about them. Fractures of the zygomatic process usually require operative repair reduction with a hook or wiring of the fragments (Dubov Gill). An interesting description of a fracture of the hyoid bone was reported (Kleinberg).

MISCELLANEOUS

Finally there comes a group of articles reporting unusual cases or interesting complications of fractures. There are 2 case reports of pathological fractures through the metatarsals of hypernephroma which healed with bony union (Gobbi Ryplins). Milkman describes, and reports a case of a condition which he calls multiple spontaneous idiopathic symmetrical fractures. Two cases of fractures associated with osteogenesis imperfecta and blue sclera which were treated by ovarian extract are reported by Kaplan. Gangrene following injury to an adjacent artery is discussed with the report of 3 cases (Dodd) and 1 case (Narcu). A case of pulmonary hernia through a

fractured sternum is reported (Fried and Bosseret) One of the complications of fractures most dreaded is fat embolus (Susani, Frev, Oppolzer, Smakov) Vance states that the diagnosis is difficult and usually made at autopsy and that the treatment is prevention, if possible, by minimizing secondary disturbances at the fracture site There are a few articles discussing the fractures sustained in various sports and occupations such as those occurring in ski jumpers (Susman), boxers (Micheli and Stoppani), metal workers (Reznik)

CONCLUSION

If it were necessary to characterize in a single word the trend of fracture treatment during the past two years, that word would be "wire" Emphasis has been laid on first-aid treatment, on the importance of the soft parts, and on the need for expert handling of operative cases, but the use of Kirschner wire, especially for traction, with and without plaster, has been enthusiastically accepted in many parts of the world It will be of great interest to see where the pendulum will come to rest.

BIBLIOGRAPHY

PART I

GENERAL DISCUSSION

1. ARNOLD, I A The fracture problem present and future status Kentucky M J, 1935, 33, 7
2. BANCROFT, F W The aims of medical education in improving the treatment of fractures. Internat. J Med & Surg, 1934, 47, 206
3. Idem The general question of the emergency treatment of fractures Ann. Surg, 1934, 100, 843
4. HARDY, H. On the different principles of treatment of fractures of the long bones of the extremity Acta chirurg Scand, 1934, 74, 417
5. BAUMECKER, H Entgegnung zur "Erfahrungen mit einer neuen Extensionsschiene fuer Beinbrueche" von Scheyer Zentralbl f Chir, 1934, 61, 1102
6. Berntsen, A New and old methods of treating fractures, with special reference to Boehler's methods Hosp Tid, 1934, 77, 1089
7. BOPPE, M A propos du traitement des fractures juxta articulaires (position d'immobilization) Presse med., Par, 1934, 42, 534
8. CALDWELL, J A Fetish worship in the treatment of fractures J Med, Cincinnati, 1934, 15, 397
9. CHAKR, A La reduction des fractures sous l'ecran Presse med., Par, 1934, 42, 843
10. CLAYTON, E B The after-treatment of fractures. Med J Australia, 1933, 2, 574
11. COHN, I Clinical examination versus X-ray examination, especially in children Surg, Gynec & Obst., 1934, 58, 485
12. Idem Resume of some personal experiences in fractures. Texas State J M, 1933, 29, 508
13. COLLINS, A J Medicine, the state, and the public. Med. J Australia, 1934, 1, 515
14. CONWELL, H E Some problems frequently encountered in the treatment of recent fractures. New England J Med, 1934, 210, 522

15. COTTON, F J Ten years of progress in the treatment of fractures Illinois M J, 1934, 66, 317
16. COTTON, F J, and PETERSON, T H Physiotherapy in fracture treatment J Bone & Joint Surg, 1934, 16, 658
17. DEMEL, R Moderne Frakturenbehandlung Wien med Wchnschr, 1934, 84, 1065
18. DRUSCHLAENDER, C Was ist funktionelle Knochenbruchbehandlung? Zentralbl f Chir, 1934, 61, 387
19. ELIASON, E I Individuality in the treatment of fractures Northwest Med, 1934, 33, 73
20. FRANK, M Klinische Beobachtungen ueber die Heilung subchondraler Knochenau sprengungen Arch f klin Chir, 1934, 179, 637
21. ESTES, W L, JR Conduct of after-treatment to prevent disability in fractures Surg, Gynec & Obst., 1934, 58, 482
22. LITTORRE, L Criteri e metodi di oggi nel trattamento delle fratture Arch di ortop, 1934, 50, 3
23. Idem Il cerotto velluto nella pratica traumatologica Atti e mem Soc. lomb di chir, 1934, 2, 167
24. Idem Il trattamento moderno delle fratture Boll d As med di Trieste, 1934, 25, 467
25. EWALD, C Die Stellung des praktischen Arztes zur modernen Frakturenbehandlung Wien klin Wchnschr, 1934, 47, 757
26. FIORENZI, O Contributo alla conoscenza delle fratture minute delle ossa (infrazione minima) Riv di radiol e fis med, 1933, 7, 555
27. FONTAINE, R La therapie des fractures d'apres le Lorenz Boehler Analyse critique des plus recents travaux de cet auteur Lyon chir, 1934, 31, 20
28. FRISCH, O Ueber die Grenze der konservativen und operativen Frakturbehandlung Wien med Wchnschr, 1933, 83, 1369
29. Idem Zur Frage der Polsterung des Gipsverbandes bei Behandlung der Knochenbrueche. Ibid, 1934, 47, 143
30. Idem Zur Frage der Polsterung des Gipsverbandes bei Behandlung der Knochenbrueche. Entgegnung auf den Artikel Schnecks Ibid, 1934, 47, 397
31. FRONTZ, H C Fractures Internat J Med & Surg, 1934, 47, 67
32. FUCHS, J Orthodkinetik und funktionelle Knochenbruchbehandlung Zugleich ein Beitrag zu der Arbeit Deutschlaenders "Was ist funktionelle Knochenbruchbehandlung?" Zentralbl. f Chir, 1934, 61, 1270
33. GOETZE, O Richtlinien zur Indikation beim Knochenbruch Ibid., 1934, 61, 136
34. HARRIS, L Overlooked fractures J Med Ass Georgia, 1934, 23, 128
35. JEWETT, E L Uses of the "U" or "sugar-tong" moulded plaster splint. Am J Surg, 1934, 26, 336
36. JONASSON, S The different principles of treatment of fractures of the shafts of the long bones Acta chirurg Scand., 1934, 74, 419
37. KAYSEN, R. Treatment of fractures by the Boehler methods California & West Med, 1934, 41, 302
38. KENNEDY, R H Transportation of early longbone fractures Surg, Gynec. & Obst., 1934, 58, 479
39. KOEHL, H Die Bedeutung der Wund- und Knochenbruchbehandlung nach Boehler Monatsschr f Unfallheilk., 1934, 41, 242
40. LANGE, F Die Behandlung der Knochenbrueche durch den praktischen Arzt 1934 Munich Lehmann

4. Idem. Wie soll der praktische Arzt die Knochenbrüche behandeln? Menschen und Wehrmacht 1934, 30, 107.
42. LARSENSTADEN, F. Pseudarthrosis after fractures of long bones. Acta chirurg. Scand. 1934, 74, 433.
43. LOMONOSOFF, W. Die Behandlung der Extremitätenbrüche. Fortschritt d. Med. 1934, 52, 477.
44. MAHNI, F. Bemerkungen zur Frage der Polsterung des Gipsverbandes und zur Indikation des Gipsverbandes im allgemeinen. Wies klin. Wehrmacht 1934, 47, 243.
45. MARLAUD, H. C. Minkaud fracture treatment. Med. Rec. New York, 1934, 40, 305.
46. MEYER, W. Frakturen und Luxationen. Zentralbl. f. Chir. 1934, 61, 730.
47. NEWELL, E. D. An outline of the treatment of fractures by the general surgeon. J. Am. M. Ass. 1934, 99, 278.
48. NEWELL, E. T., and NEWELL, C. E. First aid and treatment in fractures. Sholes and apertis. Internat. J. Med. & Surg. 1934, 47, 410.
49. NOVÁK, V. The results of fracture treatment. Razhl. Chir. Gynak. C. Chir. 1933, 19, 6.
50. PETROV, B. A. Local anesthesia in the treatment of fractures. Nov. khir. Arkh. 1933, 48, 33.
51. PRADON, O. L'extension au traitement. Polyclin. Rouen, 1934, 41, 204.
52. PRUDHOMME, S. C. The status of fractures in the field of surgery. Internat. J. Med. & Surg. 1934, 47.
53. PORTINHO, B. Einheitsmethode der Verlegung der Gipsverbände in ihre primären Bestandteile. Nov. Khir. Arkh. 1933, 30, 27.
54. PUTZIGALL, V. La riduzione traumatica ortopedica delle fratture degli arti. Chir. d. organ. di. 1934, 9, 301.
55. PUTTI, V. La cura delle fratture: problemi di ortopedizzazione. Ibid. 1934, 9, 63.
56. RICHARDS, H. R. Fracture equipment with notes on its use. Indian M. Gaz. 1934, 69, 30, 30.
57. SCHAEFER, V. Bemerkungen zu dem Aufsatz von Dietrichsander "Was ist funktionelle Knochenbruchbehandlung?" Zentralbl. f. Chir. 1934, 61, 2046.
58. Idem. Die physikalische Aufgabe des Gipsverbandes bei der Frakturbehandlung. Monatsschr. f. Unfallheilk. 1934, 41, 233.
59. Idem. Ueber die funktionelle Behandlung von Gliedern mit Knochenbrüchen durch Schöpfung der Funktion als erster, durch Uebung der Funktion als zweiter Akt. Zentralbl. f. Chir. 1934, 61, 83.
60. SCHERER, K. Ueber Extensionsapparate fuer Bruchbrüche. Bemerkung zu der Arbeit von Bismarck. Erfahrungen mit einer neuen Extensionsmaschine fuer Bruchbrüche. Ibid. 1934, 4, 10.
61. SCHWARTZ, I. G. Die Lokalanästhesie als dageschäftliches Hilfsmittel bei Knochenbrüchen. Chirurg. 1934, 6, 66.
62. Idem. Zur Frage der Polsterung des Gipsverbandes bei Behandlung der Knochenbrüche. Bemerkung zur Arbeit von Frach. Wies klin. Wehrmacht 1934, 47, 206.
63. SMITH, F. A. Soft tissue injuries frequently associated with fractures of the long bones. West Virginia M. J. 34, 30, 54.
64. SPOONER, C. L. The accomplishments and ideals of the regional fracture anesthetics. Surg. Gynec. & Obst. 1934, 58, 474.
65. STARRACH, F. Die Hilfe des praktischen Arztes bei einfachen und komplizierten Knochenbrüchen. Zentr. f. allg. Fortbild. 1934, 3, 38.
66. STARRACH, R. J. Local anesthesia its application to the reduction of fractures of long bones and dislocations of joints. Med. J. Australia, 1934, 3, 30.
67. VONSCHEIT, J. Fortschritte auf dem Gebiete der Knochenbruchbehandlung. Fortschritt d. Therap. 1934, 9, 577.
68. WELLMAN, J. J. Fractures. J. Indiana State M. Ass. 1934, 37, 97.
69. WHITE, J. R. Treatment of simple fractures. Australian & New Zealand J. Surg. 1934, 4, 360.
70. WITKOWSKI, O. Bemerkungen über einige neue Frakturbehandlungsverfahren. Schwed. Zentr. f. Unfallmed. 1933, 27, 94.
71. ZILLER, O. Zur Behandlung der Knochenbrüche. Jahrbuch f. allg. Fortbild. 1933, 24, 15.

WIRE TRACTION AND APPARATUS

72. AZAROVIC, A. La réduction mécanique des fractures recenti sotto il controllo radioscopico. Russ. med. 1934, 393.
73. ARNET, P. "Appareil universel" pour réduction des fractures, cluniques, osseuses, et orthopédiques. Presse méd. Par. 1934, 43, 1404.
74. BAUMGARTNER, H. Erfahrungen mit einer neuen Extensionsmaschine fuer Bruchbrüche. Zentralbl. f. Chir. 1934, 61, 10.
75. BRITTON, J. E., Jr. Rotating extension splint in fractures of lower leg. Northwest Med. 1934, 33, 433.
76. BLOCK, W. Eine neue Methode fuer Drahtzugversuche am Knochen. 35. Tag d. deutsch. Ges. f. Chir. Berlin, 1934.
77. Idem. Balanciertestende Drahtzugversuche am Ausguss von Seilverankerungen der Bruchstücke. Zentralbl. f. Chir. 1934, 61, 654.
78. BOER, J. R. The use of well leg traction in fractures of the lower extremity. Texas State J. M. 1934, 30, 404.
79. DARRACH, W. Traction and suspension in the treatment of fractures. Internat. J. Med. & Surg. 1934, 47, 30.
80. DELAUNAY, Y. Avantages de l'appareillage des fractures de la cuisse. Bull. et mémo. Soc. nat. de chir. 1934, 60, 76.
81. ELLIOTT, B. S. A device to aid in maintaining proper alignment in patients in Russell's or Buck's extension. J. Bone & Joint Surg. 1934, 6, 974.
82. FRIEDRICH, A. Appareillage portatif pour la réduction des fractures et des luxations sans anesthésie, sans douleur et sans aides. Presse méd. Par. 1934, 4, 303.
83. GOMBER, S. Zur Extensionsfrage. Chirurg. 1934, 6, 33.
84. HAWLEY, C. W. Epiphys constraining skeletal traction and countertraction. J. Bone & Joint Surg. 1934, 6, 976.
85. HEDGECOCK, D. W. A simplified apparatus for the use of Russell traction and Buck extension. Ibid. 1934, 6, 778.
86. HELLER, E. Ueber ein konstruktionsreichtes Extensionsmittel fuer Luxationsverletzungen und Extensionsstich. Zentralbl. f. Chir. 1934, 61, 747.
87. ICHÉA, A. La traction des directes en sé traitement de las fracturas. Chir. ortop. y traumatol. 1934, 3.
88. JOHNSON, W. E. Portable apparatus for hyper extension of the spine. Am. J. Surg. 1934, 30, 297.

50 KLAPP, R. Bemerkungen zur Drahtextension
Zentralbl. f. Chir., 1934, 61, 151

90 Idem. Die Drahtextension bei der Behandlung der
Knochenbrüche. Tung Chi med. Monatsschr.,
1934, 9, 375

91 LEWIS, P. Simple cradle attachment for a plaster cast
of the foot. J. Am. M. Ass., 1934, 102, 2000

92 MATHIEU, P. Appareillages pour le traitement des
fractures de jambe de réduction difficile. Bull. et
mém. Soc. nat. de chir., 1934, 60, 328

93 MEYER, A. Steinmannscher Nagel und Bohrdraht
in der Orthopaedie, eine neue Drahtspannvor-
richtung fuer Gipsverbaende. Ztschr. f. orthop.
Chir., 1934, 60, 357

94 MORFITT, B. W. Admountable Kirschner wire guide
for use with the Albee motor. J. Bone & Joint
Surg., 1934, 16, 727

95 MOORE, V. G. Geared spring traction apparatus. Am.
J. Surg., 1934, 23, 585

96 NEIDERT, J. Eine neue Armlagerungs- und Re-
duktionsmaschine. Zentralbl. f. Chir., 1933, 60, 2503

97 NEWMAN, W. V. An attachment for fracture tables,
designed to facilitate the application of plaster
casts to maintain hyperextension of the spine.
J. Bone & Joint Surg., 1934, 16, 986

98 NIEDRINGHAUS, R. E. Improved methods in apply-
ing the Kirschner pin by hand or electric power.
J. Bone & Joint Surg., 1934, 16, 972

99 PETTITIERE, M. Die kombinierte Behandlung der
Extremitätenfrakturen mit Drahtextension,
Hängemattensuspension und Gipschenentaxa-
tion. Deutsche Ztschr. f. Chir., 1934, 243, 177

100 PETTER, C. K. An attachment for the Hawley frac-
ture table. J. Bone & Joint Surg., 1934, 16, 211

101 POELCHEN, Die Beförderung der Patienten mit
Beinbrüchen. Med. Welt, 1934, 8, 1027

102 RAZUMOVSKIY, V. I. A simple and inexpensive method
of extension for fractures of the leg. Nov. Khir.
Ark., 1933, 28, 248

103 REED, E. N. A method of maintaining tension in
skeletal traction wires. J. Bone & Joint Surg.,
1934, 16, 968

104 ROBERTS, F. B. An instrument for wedging plaster
casts. Ibid., 1934, 16, 725

105 ROSTOCK, P. Roentgengerät zur Frakturbehand-
lung. 58. Tag d. deutsch. Ges. f. Chir., Berlin,
1934.

106 SCHMIDT, P. G. Komplikationen nach der Frakturen-
behandlung mit der Drahtextension. Chirurg,
1934, 6, 340

107 SCHUPP, H. Feinmechanik in der Frakturbehand-
lung. Ibid., 1934, 6, 681

108 SMITH, E. H. The Smith-Lowe splint. J. Bone &
Joint Surg., 1933, 15, 993

109 STRAUS, D. C. A new device for traction in the treat-
ment of fractures and dislocations of the ex-
tremities. Am. J. Surg., 1934, 25, 351

110 VIGANO, A. Come si possa ottenere una immobiliz-
zazione perfetta nelle fratture della gamba. Re-
cerche sperimentali. Chir. d. organi di movi-
mento, 1934, 20, 587

111 VORSCHUTZ, J. Die Behandlung stark dislozierter
Frakturen der Extremitäten mit Hebel-schrauben
bei verbandfreien Gelenken. 58. Tag d. deutsch.
Ges. f. Chir., Berlin, 1934.

112 WEAVER, J. B. Use of the Thomas wrench in the re-
duction of fractures and dislocations. J. Kansas
M. Soc., 1934, 35, 164.

113 WHEELDON, T. The use of Kirschner wire traction.
Virginia M. Month., 1934, 60, 675

OPERATIVE TREATMENT

114 ABADIE. Appareil pour la contention transitoire des
fractures des os longs après réduction sanglante,
jusqu'à maintien définitif par appareil plâtré ex-
terne. Bull. et mém. Soc. nat. de chir., 1934, 60,
430

115 AIGLAVE, P. Au sujet de l'ostéosynthese chez l'en-
fant. Ibid., 1934, 60, 960

116 BARNILIAN, N. Un procédé d'ostéosynthese tempo-
raire par cerclage pour les fractures diaphysaires.
Ibid., 1934, 60, 206

117 CAMPBELL, W. C. Conservation of the circulation
in bone and joint surgery. Surg., Gynec. & Obst.,
1934, 58, 116

118 CHINATA, A. L'intervento chirurgico nelle fratture.
Chir. d. organi di movimento, 1934, 20, 577

119 D'ALBUQUE, M. Deux observations de fractures
juxta-articulaires vicieusement consolidées traic-
tées par ostéotomie cunéiforme. Bull. et mém.
Soc. nat. de chir., 1934, 60, 297

120 D'HARCOURT, J. and D'HARCOURT, M. Contribución
al estudio de algunas causas de fracaso de la osteo-
síntesis y ensayo de nuevos metodos. Actas de
Soc. de cir., de Madrid, 1933, 2, 137

121 LAZIO, J. M. Consideraciones sobre el estado actual
de la osteosíntesis. Seman. méd., 1933, 1, 1149

122 FELDMAN, Erfahrungen mit der intracorticalen
Bolzung nach Just und Loeffler bei Frakturen.
Zentralbl. f. Chir., 1933, 60, 2461

123 FOWLER, E. B. Cow's horn for the fixation of frac-
tures: its stimulating effect on callus formation
and a simplified technique. Illinois M. J., 1934,
66, 231

124 Idem. The use of cow horn in a simplified method
of internal fixation of fractures. Ibid., 1934, 63,
56

125 FRISCH, O. Kritik der operativen Methoden der
Frakturbehandlung. Zentralbl. f. Chir., 1934, 61,
502

126 GAZZOTTI, L. G. Contributo al trattamento chirurgico
delle fratture endoarticolari. Arch. di chir. inf.,
1934, 1, 235

127 GOETZE, O., and BRACEFETZ, W. Die histologischen
Unterschiede der subcutanen und der operativen
Frakturheilung. Arch. f. klin. Chir., 1933, 178,
565

128 GOODWIN, F. C. The open reduction of fractures
of long bones. Texas State J. M., 1933, 29, 505

129 GRATZ, C. M., and ROBISON, R. P. Living sutures
as a supplement to plastic bone surgery. Am. J.
Surg., 1934, 26, 362

130 HANSEN, J. Die operative Knochenbruchbehandlung
im Krankenhaus Bergmannsheil 1925-1930. Arch.
f. orthop. u. Unfall Chir., 1934, 34, 369

131 HEY GROVES, E. W. The use of fascial and tendon
grafts in certain fractures and dislocations. Ann.
Surg., 1934, 100, 20

132 HORSCH, K. Verwendung von Nitrostahl zur
Plastik in der Extremitätenchirurgie. 58. Tag
d. deutsch. Ges. f. Chir., Berlin, 1934.

133 HOUDARD, L., and JUDET, J. Valeur des methodes
actuelles d'ostéosynthese par fixateur externe chez
l'adulte. J. de chir., 1934, 44, 673

134 INFANTE, A. D. Las grandes fracturas expuestas de
los miembros. Cirug. y cirujanos, 1934, 2, 209

135 JACKSON, J. A. Open reduction treatment of frac-
tures. Wisconsin M. J., 1935, 34, 11

136 JUST, E. Zu Loefflers Arbeit, "Kuenstliche Ver-
hakung der Bruchenden durch intracorticale
Stifte." Zentralbl. f. Chir., 1933, 60, 1590

STIMSON A REVIEW OF 1933 AND 1934 LITERATURE ON FRACTURES 19

184. Idem Studien ueber Knochenimplantation und Knochenneubildung, Implantation von "os purum" sowie Transplantation von "os novum" 1934 Göteborg Elanders
- 185 ROYLE, N D Treatment of ununited fractures Med J Australia, 1934, 1 409
- 186 VIGAND, A In tema di pseudoartrosi Osp magg, 1934, 22 133
- B Compound fractures*
- 187 BESLEY, F A The problems involved in the treatment of compound fractures Surg, Gynec. & Obst., 1934, 59 354.
- 188 BOEREMA, I Die antiseptische Wundbehandlung bei offenen Frakturen als Ursache von verzogelter Callusbildung Arch f klin Chir, 1933, 176 666
- 189 ČARSKÝ, K Bone suture in infected tissue. Rozhl Chir a Gynaek Č chir, 1933, 12 218
- 190 CHANG, C On the Orr treatment of osteomyelitis and compound fractures Chinese M J, 1934, 48 1126
- 191 CHRISTIAN, T E The treatment of compound fractures Texas State J M, 1933, 29 491
- 192 DALAND, E M A study of 236 compound fractures treated at the Massachusetts General Hospital New England J Med, 1934, 210 983
- 193 KEENAN, C B Treatment of compound fractures Internat Med & Surg, 1933, 46 565
- 194 ORR, H W The immediate treatment of compound fractures The Albee bone graft and the Winnett Orr method of postoperative care J Am M Ass, 1933, 101 1378
- 195 Idem The principles involved in the treatment of osteomyelitis and compound fractures J-Lancet, 1934, 54 622
- 196 ŠKRIVÁNEK, V The treatment of compound fractures Rozhl Chir a Gynaek Č chir, 1933, 12 233
- EXPERIMENTAL WORK*
- 197 BANKOFF, G Die Frakturenheilung und ihre mechanische und biologische Foerderung Arch. f klin. Chir, 1934, 179 256
- 198 BISGARD, J D Experimental studies of reparative costal chondrogenesis and of transplanted bone Surg, Gynec. & Obst., 1934, 58 817
- 199 BRANCATI, R. A proposito della comunicazione del Gianni, "Contributo allo studio del callo osseo" Atti e mem Soc lomb di chir, 1934, 2 1243
- 200 CALEF, C L'influenza dell'ormone prostatico sulla formazione del callo osseo Policlin, Rome, 1934, 41 sez chir 647
- 201 CASTAGNI, A Influenza delle radiazioni ultraviolette nella formazione del callo osseo Chir d organi di movimento, 1933, 18 396
- 202 COLP, R., KASABACH, H., and MAGE, S Periarterial sympathectomy in fractures An experimental study Arch Surg, 1933, 27 658
- 203 CRÉTIN, A., and POUYANNE, L. Action de quelques métaux sur la consolidation osseuse Bordeaux chir, 1933, 4 321
- 204 DAINELLI, M. Azione dell'osso fresco macinato somministrato per via orale nella riparazione delle fratture Policlin, Rome, 1933, 40 sez chir 722
- 205 ENGEL, P Ueber die Beeinflussung der Callusbildung durch Hormone Deutsche Ztschr f Chir, 1934, 242 213
- 206 FIORENTINI, A Ossificazioni da trauma e calcemia. Chir d organi di movimento, 1934, 20 251
- 207 GALAKHOV, E V Experimental studies of the ossification of bony callus Ortop i travmat., 1933, 7, 49
- 208 GIANNI, E Contributo allo studio del callo osseo Atti e mem. Soc. lomb di chir, 1934, 2 1107
- 209 HALDEMAN, K. O., and MOORE, J M Influence of a local excess of calcium and phosphorus on the healing of fractures an experimental study Arch Surg, 1934, 29 385
- 210 HEYDEMANN Knochenbruchheilung bei Hypophy sensstoerung Zentralbl f Chir, 1934, 61 1113
- 211 HOANG, K Le rôle des artères nourricières des os longs dans la formation du cal et la calcification de la cavité médullaire. Presse méd, Par, 1934, 42 2074
- 212 HOWES, E L., and McKEOWN, R. M Influence of a diet rich in casein on the strength of bone and the healing of fractures Arch Surg, 1934, 29 786
- 213 KEY, J A The effect of a local calcium depot on osteogenesis and healing of fractures J Bone & Joint Surg, 1934, 16 176
- 214 KEY, J A., and WALTON, F Healing of fractures and bone defects after venous stasis Arch Surg, 1933, 27 935
- 215 KNOBLOCH, J The histological character of the callus especially in bone suture of the diaphyses Sborn lél., 1934, 36 117
- 216 LERICHE, R Recherches expérimentales sur l'ostéogénèse. Presse méd, Par, 1934, 42 1903
- 217 LEVANDER, G On the formation of new bone in bone transplantation. Acta chirurg Scand, 1934, 74 425
- 218 LINDSAY, M K Observations on fracture healing in rats J Bone & Joint Surg, 1934, 16 162
- 219 LUCCHESI, G L'influenza delle surrenali sulla formazione del callo osseo Policlin, Rome, 1934, 41 sez chir 579
- 220 McMASTER, P E., and ROOME, N W The effect of sympathectomy and of venous stasis on bone repair J Bone & Joint Surg, 1934, 16 365
- 221 MACKUTH Untersuchungen zur Frage der oligodynamischen Metallwirkung auf die Frakturheilung Zentralbl f Chir, 1934, 61 2295
- 222 MASMONTIEL, F Agents d'ostéosynthèse en acier oxydable et en acier inoxydable Action comparée. Bull et mém Soc d chirurgiens de Par, 1934, 26 206
- 223 MÉNÉGAUX, G, ODIETTE, D., and MOYSE, P Action cytotoxique de quelques métaux sur le tissu osseux cultivé "en vie ralentie." Presse méd, Par, 1934, 42 1844
- 224 MOORE, J J., and DE LORIMER, A The calcium stream as concerned with the healing of fractures Am. J Roentgenol, 1934, 32 457
- 225 MURRAY, C R The healing of fractures Its influence on the choice of methods of treatment. Arch Surg, 1934, 29 446
- 226 NAKAMURA, I Experimentelle Forschungen ueber das Verhalten der verschiedenen endokrinen Organe bei Heilungsverlauf von Knochenfrakturen Tr Soc path jap, 1933, 23 189
- 227 OKKELS, H The direct toxic action of certain metals on cells, with special regard to suture materials and osteosynthesis Hosp Tid, 1934, 77 946
- 228 PAZZAGLI, R., and PAOLETTI PERINI, A Paratiroide e callo di frattura. Sperimentale, 1934, 88 456
- 229 PEYTON, W T., COPENHAVER, W., and AREY, L A quantitative study of the rate of healing in bone. The normal rate of healing Arch Surg, 1934, 29 465

- 250 SCOPPIOTTI, IRENESS. Investigations into the fat contents of urine and blood from fracture patients. *Acta chirurg Scand* 1934, 74, 475.
- 251 SILVERSTEIN, G. *Callo osseo ed ossofisi sperimentale*. Ann Ital di chir 1934, 13, 37.
- 252 TAKAKI, H. and NAKAMURA, T. Ueber das Verhalten der Hypophyse bei Knochenfrakturen. *Ts. Soc. path. jap.* 1935, 25, 43.
- 253 THIERI, G. Stoffwechselunterbrechung bei der Frakturheilung. *Zentralbl. f. Chir.* 1935, 60, 1511.
- 254 IDEM. Untersuchungen ueber die Physiologie der Knochenheilung. Das Auftreten und die Wirkung von Phosphorase an der Bruchstelle. *Deutsche Zeitschr. f. Chir.* 1935, 241, 305.
- 255 THIERI, G. and KUNKE, H. Untersuchungen ueber die Physiologie der Knochenheilung. Bruchheilung und Kohlenhydratstoffwechsel. Zugleich ein Beitrag zur Frage der inneren Glykolyse. *Ibid.* 1935, 241, 517.
- 256 VERMORSEN, J. La matériel nutritive réabsorbable en chirurgie osseuse. *Presse méd. Par.* 1934, 43, 406.
- 257 ZAWITZ, OSWALD, C. Zur Behandlung von Frakturen mit Knochengewebsextrakt. *Menschen und Weibchen* 1935, 60, 3045.
- Schweizerischen Unfallversicherungsanstalt der Jahrgänge 1937 und 1938 (665 Fälle) 1939. Zurich. Dissertation.
- 258 EKALL, W. Læsting skroelshvælsels med glykæstøget Afbesid af Processen consoldes scapulae. Gleskæsting en Behandl. med Behandling der La skroel skroelshvælsels. *Arch. f. orthop. s. Unfall Chir.* 1934, 34, 411.
- 259 FIDELL, G. La trazione col filo nella cura delle fratture della clavicola. *Chir. d. organo di movimento*, 1935, 13, 305.
- 260 IDEM. Frattura isolata della spina della scapula. *Ibid.* 1934, 13, 199.
- 261 FIDELL, C. Sopporation in closed fracture of the clavicle. *Lancet*, 1934, 1, 345.
- 262 HOTTENROTH, C. A. Impacted fracture of the neck of the scapula. *J. Roy Army Med Corps, Lond.* 1934, 61, 6.
- 263 TULLAR, A. B. Considerações sobre as fraturas da clavicula e da infancia. *Cong. ortop. y traumatol.* 1935, 21.
- 264 KIRSCHENBAUM, J. J. Fractures of the upper extremity and the clavicle. *Am. J. Surg.* 1934, 25, 297.
- 265 MARCHESI, G. Considerazioni sul meccanismo di fratture della clavicola. *Rassegna italiana di chir. terrap.* 1934, 3, 907.
- 266 MARCHI, P. Lesions de la clavicule. *Tech. chir.* 1935, 3, 309.
- 267 MARILLON, G. and GUTHRIE, A. Appareil pour la réduction et la contention des fractures de la clavicule. *Rev. d'orthop.* 1934, 2, 54.
- 268 FIDELL, J. Fractures du col chirurgical de l'omoplate. *Ibid.* 1934, 2, 120.
- 269 POTT, V. Wire traction in fractures of the clavicle. *Chir. chir.* 1934, 10, 504.

FRACTURES OF THE SHOULDER GIRDLE

- 269 ANDERSON, H. M. On the reduction of fractures of the surgical neck of the humerus. *Brit. M. J.* 1934, 1, 357.
- 270 ANDRÉ, P. and LARON, J. Pseudarthrose de l'humérus avec perte de substance et ostéite des fragments. Troubles trophiques et vasomoteurs du membre bras et de la main. Résultats du traitement chirurgical compliqué par des abcès d'écoulements. *Bull. et notes Soc. d. chirurgiens de Par.* 1934, 66, 614.
- 271 BAYLE, A. Bruch der Oberarmknochen bei ektodermischen Anfall. *Zentralbl. f. Gynäk.* 1935, 37, 3.
- 272 BLUM, L. Double pulley traction in fractures of the shaft of the humerus. Report of a case. *J. Am. M. Ass.* 1935, 10, 953.
- 273 CHEVRIER, A. Une observation de fracture de col chirurgical de l'humérus, avec lésion de la veine humérale réduite chirurgicalement. *Bull. et notes Soc. d. chirurgiens de Par.* 1934, 66, 37.
- 274 DE CLAVIER, E. Sopra un caso di frattura dell'omero di cui osse vene addetta. *Rivista med.* 1934, 1, 800.
- 275 COTTON, F. J. and MORRISON, G. M. Leverage reduction in fractures of the surgical neck of the humerus. *New England J. Med.* 1934, 21, 904.
- 276 FALLEN, R. Theories regarding the treatment of fractures, especially fractures of the humerus. *Vestn. Chir.* 1935, 87/80, 5.
- 277 FEILDERICH, F. Frakturbehandlung der oberen Extremität. *Wien med. Wochenschr.* 1934, 84, 33.

PART

FRACTURES OF THE SHOULDER GIRDLE

- 278 BAKER, R. E. A simple immobilization apparatus for fractures of the clavicle. *U. S. Nav. M. Bull.* 1934, 3, 34.
- 279 BIGNARDI, G. R. La trazione filo nella cura delle fratture della clavicola. *Chir. chir.* 1934, 10, 97.
- 280 CARAVITA, G. Sulla cura cronica delle fratture della scapola. *Arch. di ortop.* 1934, 30, 797.
- 281 CORRALIOTTI, G. B. Sul trattamento definitivo del Commo nella frattura di scapola. *Policlin. Roma*, 1934, 41, 201, 202.
- 282 COSMOLI, A. D. Lesions pathologiques de fractures de l'omoplate. *Presse méd. Par.* 1934, 43, 19.
- 283 CORRALI, F. M. Fractura espontânea na região da clavicula. *Med. rev. medicos*, 1934, 24, 11.
- 284 DE FACCHINI, D. Trattamento de las fracturas de la clavicula. *Chir. y lab.* 1934, 24, 30.
- 285 DUFFWILLER, A. Zur Prognose und Therapie der Claviculafrakturen. Nach dem Material der

- 274 FOTHERINGHAM, W T Fracturas de la epífisis superior del húmero *Semana méd.*, 1934, 41 1542
- 275 FOTHERINGHAM, W T De las fracturas de la epífisis superior del humero *Ibid*, 1934, 41 981
- 276 FREY, E K Zur Operation der Brueche am oberen Ende des Oberarmes *Zentralbl. f. Chir.*, 1934, 61 851
- 277 FRUTIGER, M Ueber Schulter-Luxationsbrueche *Schweiz. med. Wchnschr.*, 1934, 64 825
- 278 Idem Die kompletten Luxationsfrakturen des Schultergelenks *Ibid*, 1934, 64 1026
- 279 GIOIA, T A propósito de las fracturas de la epífisis superior del húmero *Semana méd.*, 1934, 2 1132
- 280 GREELEY, P W, and MAGNUSON, P B Dislocation of the shoulder accompanied by fracture of the greater tuberosity and complicated by spinatus tendon injury *J Am M Ass.*, 1934, 102 1835
- 281 GURDJIAN, E S, and GOETZ, A G Radial paralysis complicating fracture and dislocation in the upper limb *Ann Surg.*, 1934, 99 487
- 282 HOWARD, N J, and ELOESSER, L Treatment of fractures of the upper end of the humerus An experimental and clinical study *J Bone & Joint Surg.*, 1934, 16 1
- 283 JAUREGUI, E G Procedimiento práctico para tratar algunas fracturas del húmero *Cirug y cirujanos*, 1934, 2 203
- 284 KARFIOL, G Zur Behandlung der Oberarm-Halsfraktur *Zentralbl. f. Chir.*, 1933, 60 1818
- 285 KIELING, W Wie kann der Landarzt Oberarm- und Schultergelenkbrueche mit bestem Erfolg selbst behandeln? *Med Klin*, 1933, 29 1686
- 286 KRABBEL, M Zur Behandlung schwer dislozierter Oberarmhalsfrakturen *Zentralbl. f. Chir.*, 1934, 61 1187
- 287 Idem Zur Behandlung der dislozierten Oberarmhalsfrakturen *Ibid*, 1934, 61 1098
- 288 LOKTIONOR, I A metal splint for the treatment of fractures of the upper extremity *Sovet. vrach gaz.*, 1933, 23/24 1197
- 289 POELCHEN, A Die Selbstnervationsbehandlung der Frakturen der oberen Extremitaet. *Monatschr f Unfallheil.*, 1934, 41 176
- 290 POLIZZOTTO, A. Sul modo migliore di agire nelle fratture dell'omero complicate da paralisi del nervo radiale. *Atti e mem Soc. lomb di chir.*, 1934, 2 1611
- 291 RAPACCINI, M Sulle fratture della spalla *Arch di ortop.*, 1934, 50 311
- 292 RISHWORTH, H R Pseudoarthrosis of the humerus *Indian M Gaz.*, 1933, 68 676
- 293 ROGERS, H End-result study of humeral shaft fractures *Surg., Gynec. & Obst.*, 1934, 59 934
- 294 RUFER, A The treatment of fracture of the humerus with an abduction splint *Časop lék česk.*, 1933, 72 1155
- 295 SABADINI, L Contribution au traitement précoce des fractures de l'extrémité supérieure de l'humérus compliquées de luxation Avantages de la réposition sanglante par une voie d'abord élargie de la région sans section de la coracoïde et du sous-scapulaire *J de chir.*, 1933, 42 706
- 296 SANTI, E Le fratture dell'estremo superiore e della diafisi dell'omero nell'infanzia *Clin chir.*, 1934, 10 648
- 297 SCHÄR, W Allseitig erstellbare Oberarmabduktionschiene (Modifikation des Boehlerschen Modelles) *Zentralbl. f. Chir.*, 1933, 60 2717
- 298 SCHTRADER, Oberarmbruch Eine Selbstbeobachtung *Muenchen med Wchnschr.*, 1934, 81 972
- 299 SCHUPP, H Zur Behandlung der Oberarmfrakturen, besonders der subkapitalen. Ein neues Extensiongeraet. *Zentralbl. f. Chir.*, 1934, 61 1981
- 300 SEVER, J W Non union in fractures of the shaft of the humerus *J Am M Ass.*, 1935, 104 382
- 301 SMYTH, C M, JR. Fractures of the shaft of the humerus *Ann Surg.*, 1934, 99 1013
- 302 STENBUCK, J B A plaster-of-Paris buttress for use in cases of fracture of the humerus treated by means of traction in a Thomas splint *J Bone & Joint Surg.*, 1933, 15 1015
- 303 THIEROLF, R Zusammenhangsfrage zwischen Oberarmfraktur und Echinococcussiedlung *Monatschr f Unfallheil.*, 1934, 41 248
- 304 VALLS, J, and GERARDI, V C La tracción esquelética en las fracturas graves de la extremidad superior del húmero *Bol y trab Soc de cirug des Buenos Aires*, 1934, 18 983

FRACTURES OF THE ELBOW JOINT

- 305 AVELLAN, W Ueber Frakturen des unteren Humerusendes bei Kindern *Acta chir Scand.*, 1933, 73 Supp 27, 1
- 306 BAJ, L Fratture isolate del capitello del radio da causa diretta *Chir d organi di movimento*, 1934, 20 408
- 307 BATES, W Fractures of the lower end of the humerus *Ann Surg.*, 1934, 99 1007
- 308 BECCARI, C. Contributo statistico-clinico alla conoscenza della frattura isolata del capitello del radio *Chir d organi di movimento*, 1934, 19 173
- 309 Idem. Osservazioni sulla frattura del collo del radio *Polichin, Rome*, 1934, 41 sez. chir 213
- 310 BECK, A Zur Behandlung der supracondylären kindlichen Humerusfrakturen *Zentralbl. f. Chir.*, 1933, 60 2242
- 311 BOEMINGHAUS, H Zur Drahtextension am Ellbogen bei Frakturen am Oberarm *Ibid*, 1934, 61 482
- 312 BOPPE, M La réduction de déplacement latéral des fractures sus-condyliennes de l'humérus chez l'enfant *Bull et mém Soc nat de chir.*, 1933, 50 1494
- 313 BOPPE, M, and CHOMET, J Traitement des fractures sus-condyliennes de l'humérus chez l'enfant. *J de chir.*, 1934, 43 505
- 314 BURNS, B H Ununited fracture of the humerus with ossification of the flexor muscles of the forearm *Proc Roy Soc Med, Lond.*, 1934, 27 1263
- 315 CARLI, C Trazione col filo nelle fratture sovracondiloidee di gomito del bambino *Chir d organi di movimento*, 1933, 18 311
- 316 CATTANEO, F Il trattamento cruento delle fratture e lussazione inveterata del gomito col metodo transolecrânico *Arch di ortop.*, 1934, 50 741
- 317 COENEN Der Entstehungsmechanismus des supracondylären Oberarmbruchs *Muenchen med Wchnschr.*, 1933, 80 1174
- 318 CORN, I Personal observations on fractures about the elbow *J Oklahoma State M Ass.*, 1934, 27 92
- 319 COLETTI, D A. Fratture olecrániche e sintesi con materiale riassorbibile *Chir d organi di movimento*, 1933, 18 296
- 320 COLLIN, H Ueber Spaetschädigungen im Gebiete des Nervus ulnaris nach Ellbogenverletzungen bzw Arthritis deformans, mit besonderer Berücksichtigung der Unfallbegutachtung 1933 *Münster W., Dissertation*
- 321 CORTON, F J Old elbow injuries *New England J Med.*, 1934, 210 1289

- 332 CURRYGRAM, S. R. Fracture of the skull with dislocation of the head of the radius. *J Bone & Joint Surg.* 1934, 16, 371.
- 333 EASTON, E. R. The Kachetbocker tong (or calipers) as applied to fractures of the shaft of the humerus and femur—a preliminary report. *Am J Surg.* 1934, 48, 305.
- 334 EASTON, S. H. Fractures of the elbow. *Illness M J.* 1934, 64, 234.
- 335 EBERG, E. Fractures of the elbow in childhood. *Hygien.* Stockholm, 1934, 90, 161.
- 336 ELIASON, E. L. and McLAUGHLIN, C. W. Jr. Fractures of the lower end of the humerus. *Am J Surg.* 1934, 43, 70.
- 337 ELMOT, E. Jr. Fracture of the olecranon. *Surg. Clin. North Am.* 1934, 14, 487.
- 338 EDWALD, P. Die Ellenbogenbrüche. *Monatsschr. med. Wochenschr.* 1935, 80, 3045.
- 339 EISENBERG, F. Zur operative Behandlung der Traumaerkrankungen des distalen Humerusendes. *Zentralbl. f. Chir.* 1934, 61, 173.
- 340 FROCHOTTER, R. and LAZARUS, A. Fractura supracondylar del codo en los niños. Tratamiento y resultados. *Seminario med.* 1933, 2, 2837.
- 341 FRECHAU, H. Fracture de l'apophyse coronoïde de l'humérus associée à une fracture de la capsule radiale et compliquée de lésions de coude en arrière. *Lyon chir.* 1934, 2, 8.
- 342 GOTA, T. Contribución al tratamiento de las fracturas articulares abiertas por medio de la sutura precoz sin drenaje. *Seminario med.* 1934, 2, 642.
- 343 GUYER, L. Sulla cura delle fratture del gomito del loro arti. *Arch. di ortop.* 1934, 50, 301.
- 344 GUTERMAN, L. and SOKOLOV, A. Paralysie tardive d'un art cubital et calcifications pure articulaires caractéristiques à une fracture de l'olécranon. *Rev. d'orthop.* 1934, 2, 6.
- 345 GUTTENBERG, Fracture supracondylar del codo de los niños. *Lyon chir.* 1934, 2, 344.
- 346 GUTMAN, RUTH, A. Fractura triple del cubito con lésiones del radio. *Actas Soc. de cir. de Madrid.* 1934, 3, 221.
- 347 HALL, A. Fracturas de Monteggia. *Cirug. ortop. y traumatol.* 1934, 203.
- 348 JEWELL, Dislocationen der Behandlung des supracondylar humeralen Oberarmbruchs und des Olecranonbruchs. *Zentralbl. f. Chir.* 1934, 61, 16.
- 349 LAYBROT, A. Contribución al estudio de la fractura de Monteggia. *Rev. de ortop. y traumatol.* 1933, 3, 20.
- 350 LEE, W. E. and SCHWARTZ, T. J. Fracture of the capitulum of the humerus. *Ann Surg.* 1934, 99, 477.
- 351 LEVET, J. and GORDON, H. La réduction simple des fractures supra-condylar del humerus chez l'enfant. *J. de chir.* 1935, 45, 558.
- 352 LUCCHINI, C. Frattura lussuosa de Monteggia. *Rivista med.* 1933, 127.
- 353 MACRAE, D. B. A method of reducing supracondylar fractures of the humerus. *Canadian M. Ass. J.* 1934, 30, 202.
- 354 MAERZ, M. Schwere Ellenbogenverletzung nach Unfalltrauma am Olecranon. *Zentralbl. f. Chir.* 1933, 60, 2744.
- 355 MILLER, E. M. Treatment and results of severe fractures of the elbow. *West J. Surg. Obst. & Gynec.* 1934, 42, 30.
- 356 NIKRAEL, F. O. Treatment of supracondylar fractures. *J. Lancet.* 1934, 54, 671.
- 357 NOWOTNY, H. Ueber direkte Forderung von Knochen brechen mit der Nadel. *Zentralbl. f. Chir.* 1933, 60, 2961.
- 358 PATTERSON, R. F. Treatment of displaced transverse fractures of the neck of the radius in children. *J. Bone & Joint Surg.* 1934, 16, 693.
- 359 PELLEGRINI, O. Osservazioni anatomiche e radiografiche sul gomito durante il periodo dell'accrescimento e loro rapporti con le lesioni traumatiche dei capi articolari. *Arch. di chir. inf.* 1934, 1, 1.
- 360 PFANN, H. Ueber Rachenarthroskopie. *Arch. f. orthop. u. Unfall Chir.* 1933, 34, 97.
- 361 PILLATO, F. Dimostrazione traumatica della lacerazione del radio del tendine distale del bicipite brachiale. *Bol. e Ann. Soc. perinatologica di chir.* 1934, 4, 1045.
- 362 REIS, ROBERTO. Sarcoma mieloplastico complicato a fractura del humero. *consideraciones clinica y médico-legal.* *Chir. y lab.* 1934, 24, 457.
- 363 REULE, Zur Behandlung der supracondylar Oberarmbrüche im Kindesalter. *Arch. f. orthop. u. Unfall Chir.* 1933, 33, 344.
- 364 ROBERTS, N. W. Displacement of the internal epicondyle into the elbow joint. *Lancet.* 1934, 1, 76.
- 365 ROLLO, G. Il trattamento chirurgico delle comminazioni vicine e in quel non recenti delle lesioni supracondiloidi dell'omero dei bambini. *Ortop. e traumatol. appar. mot.* 1934, 6, 181.
- 366 ROWLAND, C. A new operative treatment for fracture of the olecranon. *J. Bone & Joint Surg.* 1934, 16, 947.
- 367 SCHWARTZ, F. O. Konservativ behandelte Fraktur des Y Bruchendes des Oberarmes. *Zentralbl. f. Chir.* 1934, 61, 334.
- 368 SCHWARTZ, R. P. and YOUNG, F. Treatment of fractures of the head and neck of the radius and ulnar epiphyses in children. *Surg. Gynec. & Obst.* 1933, 57, 528.
- 369 SCHNEIDER, E. and DOLLET. Décollement épiphysaire du condyle externe, avec rotation de 180° montrant un axe antéro-postérieur. *Bull. et mémoires Soc. med. de chir.* 1934, 60, 330.
- 370 SZABORUSKOWSKI, S. The conservative treatment of fractures of the olecranon. *Nov. Chir. Archiv.* 1934, 20, 7.
- 371 SWIN, J. S. and MACEY, H. B. Fractures of the humeral condyles in children. *J. Bone & Joint Surg.* 1933, 15, 903.
- 372 STRAUSS, F. Humerusgelenkbrüche nach Ellenbogengelektabrischen. *Arch. f. orthop. Unfall Chir.* 1934, 34, 410.
- 373 STROCK, L. Beitrag zur Olecranonfrakturbehandlung und Grund der an der Leipziger Klinik vom Jahre 1919-1931 behandelten Fälle. 1933, Leipzig, Dissertation.
- 374 VALLI, J. and OTTOLING, C. E. Fractura de la epifisis con interposición intra articular del fragmento y parálisis del nervio cubital. *Rev. de ortop. y traumatol.* 1933, 5, 209.
- 375 VERNON, S. Medial ulnar lig for fractures about the elbow. *Am J Surg.* 1934, 45, 555.
- 376 VOLLMER, D. G. So-called Pott's fracture of the forearm. *Ortop. y traumatol.* 1933, 6, 50.
- 377 WOOD, H. L. C. Recent ulnar nerve palsy associated with an old injury to the elbow joint and cervical rib. *Proc. Roy. Soc. Med. Lond.* 1934, 26, 104.
- 378 ZERVO, L. Fractura de la epifisis con interposición intra-articular del fragmento. Parálisis del nervio cubital. *Bol. y trab. Soc. de cirug. de Buenos Aires.* 1933, 7, 120.

- 369 Idem Fracturas supracondíleas del humero tratamiento tipificado Rev de ortop y traumatol, 1934, 3 452

FRACTURES OF THE FOREARM, WRIST, AND HAND

- 370 ANDERSON, R. Fractures of the radius and ulna A new anatomical method of treatment. J Bone & Joint Surg, 1934, 16 379
- 371 APPELBACH, G L, and SCUDDER, C S An unusual carpal fracture dislocation report of a case J Am M Ass, 1934, 103 672
- 372 BABBINI, R J Contribución al tratamiento quirúrgico de las fracturas del antebrazo Rev méd d Rosario, 1934, 24 415
- 373 BABBINI, R J, and BARBERIS, J C Fractura doble del tercio inferior de antebrazo Bol Soc de cirug d Rosario, 1934, 1 99
- 374 BAJ, L Sul distacco traumatico dell'epifisi inferiore dell'ulna Boll e mem. Soc piemontese di chir, 1934, 4 1071
- 375 BURNETT, J H Fracture of the (navicular) carpal scaphoid. New England J Med, 1934, 211 56
- 376 BUZBY, B F Pennavicular-lunar dorsal dislocation of the wrist with comminuted fracture of the navicular Ann Surg, 1934, 100 557
- 377 CABRAS, F Rilevi statistici sulle fratture di Colles Chir d. organi di movimento, 1934, 20 524
- 378 CANTON, M Un cas de fracture de Letenneur J de méd de Bordeaux, 1934 4 115
- 379 CLAYTON, C F Skeletal distraction in the treatment of fractures of the forearm Texas State J M, 1934, 30 254
- 380 COOPER, H P Treatment of fractures of the lower end of the radius J Nat. M Ass, 1934, 26 60
- 381 DIVNOGORSKIY, B F, and RYBUŠKIN, I N Fracture of the first metacarpal bone and its treatment. Sovet Khir, 1933, 4 404
- 382 EDELMANN, H. Hakenbeinfraktur Zentralbl f Chir, 1934, 61 1915
- 383 EGASNA, R. Sobre una fractura marginal anterior de la extremidad inferior del radio Bol. y trab Soc de cirug de Buenos Aires, 1933, 17 1174.
- 384 GHETTI, L Contributo allo studio delle fratture delle dita della mano Arch di ortop, 1934, 50 557
- 385 GILLIES, C L Torus fractures of the lower extremity of the forearm in children J Am M Ass, 1933, 101 1374
- 386 GUTIÉRREZ, A Pseudoarthrosis del antebrazo y anquilosis del codo consecutiva a fractura expuesta del radio y cúbito Bol. y trab Soc de cirug de Buenos Aires, 1934, 18 1267
- 387 HAGGART, G E Fractures of the metacarpal, metatarsal bones, and phalanges treated by skeletal traction Surg Clin North Am, 1934, 14 1203
- 388 Idem. Comminuted Colles' fracture in elderly patients New England J Med, 1933, 209 1140
- 389 HOFFMEISTER. Behandlung der Kahnbeinbrueche und Pseudoarthrosen Zentralbl f Chir, 1934, 61 2060
- 390 HOLZMAN, S Colles' fracture Lancet, 1934, 2 598
- 391 IRVINE, W H Dorsal dislocation of the wrist with fracture of the radius reduction under local novocaine Canadian M Ass J, 1934, 31 65
- 392 KROGH CHRISTOFFERSEN, A A modification of extension treatment of fractures of the fingers, metacarpus, toes, and metatarsus Ugeskr f Læger, 1933, 95 1239
- 393 LAPIDARI, M Criteri moderni nella cura delle fratture del polso e del collo del piede Atti e mem Soc lomb di chir, 1934, 2 1423
- 394 LEVINTHAL, D H. Fractures in lower third of both bones of the forearm in children. Manipulative reduction Surg, Gynec. & Obst., 1933, 57 790
- 395 LEWIS, K M Colles' fracture of the radius. Observations on 188 cases Ann. Surg, 1934, 99 510
- 396 LORIÉ, J P Fractura de Colles o de Pouteau Cirug ortop y traumatol, 1934, 2 167
- 397 MILCH, H. Fracture of the hamate bone J Bone & Joint Surg, 1934, 16 459
- 398 MILLER, O L Management of fractures of the bones of the forearm. South M & S, 1934, 96 4.
- 399 MOUCHET, A Fractures isolées du scaphoïde carpien Presse méd, Par, 1934, 42 121
- 400 MURRAY, G Bone graft for non union of the carpal scaphoid Brit J Surg, 1934, 22 63
- 401 NICOLINI, S Tracción esquelética en las fracturas del tercio inferior del radio Semana méd, 1934, 1 1100
- 402 NUZZI, O Sul meccanismo di frattura della base del primo metacarpo in ciclista Ortop e traumatol. appar mot., 1934, 6 210
- 403 OBERZIMMER, J Die konservative Behandlung von frischen Bruechen beider Vorderarmknochen im Schaft. Beitr z klin Chir, 1933, 158 590
- 404 OTTOLENGHI, C E, and SPINELLI, C A Sinostosis radiocubital por fractura del radio mal consolidada. Bol y trab Soc. de cirug de Buenos Aires, 1934, 18 805
- 405 PAAL, E Isolierte Luxationsfraktur des Os naviculare, ein Beitrag zu den seltenen Verletzungen der Handwurzel Zentralbl f Chir, 1934, 61 1282
- 406 PADULA, A. Su due casi di frattura isolata dell'osso semilunare Chir d organi di movimento, 1934, 19 69
- 407 POLIEVKTOV, I A. The Treatment of Typical Fractures of the Radius 1933 Smolensk.
- 408 ROCHER, H. L, and ROUDIL, G Fractures isolées de la styloïde cubitale chez l'enfant Rev d'orthop, 1934, 21 122
- 409 ROSTOCK. Ueber die Navicular-Pseudoarthrose Arch f orthop u Unfall-Chir, 1933, 34 318
- 410 ROUSSEAU, G and ADAMESTEANU, C Les fractures du bord antérieur de l'extrémité inférieure du radius J de chir, 1934, 44 211
- 411 RUFER, A Suture of one or both bones in fractures of the forearm? Rozhl Chir a Gynaek. Č chir, 1933, 12 260
- 412 SCHLACHTER, A A "Spontaneous" rupture of the tendon of the tensor pollicis longus after fracture of the lower extremity of the radius Nederl Tijdschr v Geneesk, 1934, 78 4192
- 413 SCHNEK, F Frischer Bruch des Kahnbeins Zentralbl f Chir, 1934, 61 1609
- 414 SMITH, E H Autogenous bone dowel for relief of fracture of the scaphoid bone of the wrist Med Rec., New York, 1934, 139 655
- 415 SOTO-HALL, R, and HALDEMAN, K O The treatment of fractures of the carpal scaphoid J Bone & Joint Surg, 1934, 16 822
- 416 SOWLES, H. K. End-results of fractures of both bones of the forearm Ibid., 1934, 16 193
- 417 STEINDLER, A. Fracture disabilities of the wrist. Surg, Gynec. & Obst., 1934, 58 487
- 418 STREATFIELD, T, and Griffiths, H F Fracture of a sesamoid bone Lancet, 1934, 1 1117
- 419 ŠVÁB, V Early roentgen diagnosis of bridging callus in fractures of the forearm? Rozhl Chir a Gynaek. Č chir, 1933, 12 258
- 420 WESTERMANN, H H Die Therapiefrage der Navicularefraktur, 1933 Frankfurt. a. M., Dissertation

- 41 WINKLER, H. and MILLER, O. L. Fracture of the corpus. *South M & S* 1934, 66, 522
 - 42 ZACKEN, J. Fractures of the fingers. *Orthop J Travmat* 1934, 7, 34
 - 43 ZAROVIC, N. Lesions of the carpal bones. *Ibid* 1934, 8, 43
- FRACTURES OF THE SPINE
- 44 V. SART, M. B. and D'HAECQOT, G. J. Contribucion al estudio de las secuelas a distancia de las transtomias vertebrales y su tratamiento. *Rev de ciruj de Barcelona*, 1934, 6, 1
 - 45 BACHMEIER, E. Eine Fraktur oder Luxation im Bereiche der Halswirbelsäule. *Zentralbl f Chir* 1934, 6, 2164
 - 46 BART, L. and STONE, E. A propos du traitement des fractures de la colonne vertebrale par la methode de Boehler. *Bull et mem Soc nat de chir* 1934, 60, 4
 - 47 BECK, A. Zur Behandlung der Wirbelfrakturen und der komplizierten Frakturen. *Arch f klin Chir* 1934, 177, 430
 - 48 BLEVINS, B. Wirbelsäulenbruch und Konett. *Arch f orthop u Unfall Chir* 1934, 34, 1
 - 49 BOELLER, Demonstrationen zur Behandlung von Wirbelsäulenverletzungen. *Zentralbl f Chir* 1934, 60, 21
 - 50 BOETTGER and HEUTMANN. Spontylolisthesis traumatica vertebrae dorsalis. *Chirurg*, 1934, 6, 485
 - 51 BOWMAN, Dornfortwirbelsäule. *Deutsche med Wochenschr*, 1934, 60, 75
 - 52 BOWLER, R. F. A report of 40 cases of fracture of the vertebra without cord symptoms. *J Bone & Joint Surg* 1934, 6, 585
 - 53 BOWLER, J. P. and GALT, J. F. Compression fractures of vertebral bodies. *New England J Med* 1934, 20, 105
 - 54 BRAMANN, C. Von Wirbelsäule. *Med Welt*, 1934, 8
 - 55 BROWDER, J. and MILLER, T. Fractures of the apical columna. *West Virginia M J*, 1934, 30, 497
 - 56 BRUNER, A. Zur Behandlung der Wirbelsäulenfrakturen nach Carriagewerkzeugen. *Arch f klin Chir* 1934, 177, 40
 - 57 CROFT, E. T. Treatment of cross fractures of the spine. *Australas J New Zealand J Surg* 1934, 3, 25
 - 58 CUNEO, S. Sul morbo di Koenig. *Ann Ital di chir* 1934, 3, 149
 - 59 CONYERS, J. T. and MAIR, I. E. The management of neurological complications in injuries to the spine. Report of 54 cases without single collection in the urinary tract. *Am J Surg*, 1934, 36, 30
 - 60 DRAVETZ, and DILANOVAT. U cas de fracture de l'apophyse odontoides de l'axe. *Paris med* 1934, 300
 - 61 DIET, J. C. A propos d'un cas de fracture du rachis et symptomes avertis paralytiques traites par la methode de Boehler. *Bull et mem Soc nat de chir* 1934, 60, 530
 - 62 ELLIOTT, A. J. and McKEITHEN, J. C. Fracture of the spinous process of the sixth cervical vertebra (case report). *J Iowa State M Soc* 1934, 24, 24
 - 63 ESTER, C. Delayed appearance of deformity in vertebral body fractures. *J Am M Am* 1934, 108
 - 64 F. LERN, K. F. Moderne Behandlung von Kompressions- und Frakturen der Brust und Lendenwirbelsäule. Die Behandlungsergebnisse der Wirbelsäulenfrakturen nach R. von Boehler. *Arch f klin Chir* 1934, 70, 5
 - 65 GIERLACH, G. Experimentelle Untersuchungen über symmetrische Frakturen der Wirbelsäule. *Arch f orthop u Unfall Chir* 1933, 31, 464
 - 66 GONZALEZ, V. and DUBOIS, T. Functional treatment of compression fractures of the spine. *Socet Chir* 1934, 5, 13
 - 67 GUREN, J. A propos de la reduction des fractures de la colonne vertebrale. *Proces med Par* 1934, 41, 1572
 - 68 HALL, E. W. The prognosis of fractures of the vertebrae. *Am J Roentgenol* 1934, 2, 167
 - 69 HAYES, H. Über die Heilung schwerer nicht operierter Verletzungen der Brustwirbelsäule. Totalanästhesie und Lumbotomiefraktur. *Berlin f klin Chir*, 1934, 129, 148
 - 70 HAYDON, W. B. Fractures of the spine. Treatment and transportation. *Brit M J* 1934, 774
 - 71 HILZBRUNN, H. Zur orthopädischen Behandlung der Wirbelsäule. *Zentralbl f Chir* 1934, 60, 2164
 - 72 HIRSH, A. B. Late results of paralysis of the bladder following fracture of the spine. The value of secretory programme in demonstrating these changes. *Surg Clin North Am* 1934, 13, 1370
 - 73 HOLMSTAD, E. C. Observations of fractures of the cervical spine. *Internat J Med & Surg* 1934, 47, 30
 - 74 IACOVIC, I. and JIANU, S. I. A contribution on fractures of the spine. *Rev de chir Bucharest*, 1934, 37, 5
 - 75 ILLI, A. and BLANCHI TOLENO, P. Compression medullaire par fracture de la colonne cervicale. *Curs orthop u traumatol* 1934, 3, 27
 - 76 JONES, J. M. GALLINER, A. and LITTON, T. Fracture of the arch posterior of the atlas. *Bull f Inst Soc de chir de Buenos Aires*, 1934, 8, 141
 - 77 JOLLARD, La malade de cornet dans les fractures de la colonne vertebrale. *Schweiz med Wochenschr* 1934, 64, 917
 - 78 JONSSON, H. Die Verletzungen der Wirbelsäule. *Überwachungslehrer*, 1934, 6, 8
 - 79 KALOS, H. Richtlinien und physiologische Grundlagen der funktionellen Behandlung von komplizierten Wirbelsäule. *Deutsche Zeitschr f Chir* 1934, 177, 553
 - 80 LEROY, E. La distorsion metacarpale vertebrale. *Arch di orthop* 1934, 40, 100
 - 81 LEROY, S. Les fractures dell'apophyse. *Osp Bergamo*, 1934, 2, 250
 - 82 LEVAKOVA, E. The treatment of fractures of the spine. *Socet Chir* 1934, 4, 576
 - 83 LÓPEZ, R. V. Lesion de la apófisis odontoides del atlas. *Madrid*, 1934, 4, 99
 - 84 MACKER, E. Teilsriss und vollständige Verrenkungen und Brüche der Halswirbelsäule und ihre Spätkomplikationen. *Deutsche Zeitschr f Chir* 1934, 177, 595
 - 85 MALKIN, S. ALAN B. Spontylolisthesis of the fourth lumbar vertebra with cross fracture of the second and sacrum of the fifth. *Proc Soc Roy Med Lond* 1934, 27, 575
 - 86 MAYER, L. Correction of lateral compression fractures of lumbar vertebrae. *J Bone & Joint Surg* 1934, 6, 604
 - 87 MICHEL, G. Michel, M. and ROUSSEAU, R. Les Traumatismes Fermeés du Rachis. 1933. Paris, Masson
 - 88 MOTT, B. W. Pathological fractures of the spine associated with disorders of calcium metabolism. *Arch Surg* 1934, 8, 691

- 469 MOOREHEAD, F B, and STOOKEY, B Fracture-dislocation of the cervical spine *Ann Surg*, 1934, 99 818
- 470 PARMLEY, V Compression fractures of vertebral bodies *Am J Surg*, 1934, 25 419
- 471 PATEL and DARGENT Un cas de fracture de la 1^{re} vertèbre lombaire traitée par greffe précoce à la manière d'Albee *Lyon chir*, 1934, 31 327
- 472 PATTERSON, R F The use of a modified hospital bed for treating fractures of the spine *J Bone & Joint Surg*, 1934, 16 207
- 473 PENN, J A simple method of applying a body cast in fractures of the spine *Ibid*, 1934, 16 205
- 474 PETROV, B Reduction of compression fractures of the spine. *Nov Khir Arkh*, 1933, 29 56
- 475 PROUST, R Sur les fractures de la colonne vertébrale *Bull et mém Soc nat. de chir*, 1934, 60 1334
- 476 RHYS, O L Two hundred and seventy cases of fractured spine radiologically considered *Brit. M J*, 1934, 1 655
- 477 ROGERS, W A Treatment of fractures of vertebral bodies uncomplicated by lesions of the cord *Arch Surg*, 1935, 30 284
- 478 ROSTOCK, P Die traumatischen Erkrankungen der Wirbelsäule *Beitr z. klin. Chir*, 1934, 150 313
- 479 RYERSON, E W Automobile jack for fractured spine *J Am M. Ass*, 1934, 103 562
- 480 SCHLACHETZKI Zur Wiederaufrichtung frakturierter Wirbelkörper *Zentralbl f Chir*, 1934, 61 706
- 481 SÉNÈQUE, J, and SICARD, A. Les avantages de la réduction en position de décubitus dorsal dans les fractures de la colonne vertébrale (fractures dorso-lombaires) *J de chir*, 1935, 45 161
- 482 SÉNÈQUE, J, SICARD, A., and NICOLAS Les avantages de la position en décubitus dorsal pour la réduction des fractures de la colonne vertébrale avec déplacement. *Bull. et mém Soc. nat. de chir*, 1934, 60 1138
- 483 ŠKVARIL, J Fractures of the atlas *Časop lék. čes.*, 1933, 72 1611
- 484 SMITH, A DEF A benign form of osteomyelitis of the spine *J Am M Ass*, 1933, 101 335
- 485 STOOKEY, B Air-cushion reduction of incomplete vertebral fracture-dislocations associated with spinal cord injuries *Am J Surg*, 1934, 26 513
- 486 THOMASSEN, C An adjustable plaster-of Paris bed for patients with tuberculosis of the spine *Nederl. Tijdschr v Geneesk*, 1934, 78 1419
- 487 TUCKER, J T The latest development in the treatment of fractured spines *Virginia M Month*, 1934, 61 154
- 488 UMLAUFT Beitrag zu den Bruechen der Halswirbelsäule *Zentralbl f Chir*, 1933, 60 2462
- 489 VERNON, S Fracture of the fourth lumbar vertebra with paraplegia *Am J Surg*, 1934, 25 178
- 490 VORSCHUTZ, J Bemerkungen zur Dauer der Behandlung der Wirbelfrakturen *Zentralbl f Chir*, 1934, 61 548
- 491 WAINSTEIN, V The treatment of fractures of the spine *Soviet Khir*, 1933, 4 585
- 492 WATSON JONES, R. The treatment of fractures and fracture-dislocations of the spine *J Bone & Joint Surg*, 1934, 16 30
- 493 WEIDMANN, W Nachuntersuchungen von Querfortsatzfrakturen. 1933 Zurich, Dissertation
- 494 WILEY, A R Treatment of fractures and fracture dislocations of the spine *Internat J Med & Surg*, 1934, 47 184
- 495 WINTERSTEIN, O Ueber Querfortsatzfrakturen *Schweiz. Ztschr f Unfallmed*, 1934, 28 57
- 496 WOLSCZAN, J Fractures and dislocations of the spine. *Chir narz ruchu*, 1933, 6 705
- 497 WOLTMAN, H W, and MEYERDING, H W Spontaneous hyperemic dislocation of the atlas with the report of a case *Surg Clin North Am*, 1934, 14 581
- 498 ZENO, L Tratamiento de las fracturas de los cuerpos vertebrales *Bol y trab Soc. de cirug de Buenos Aires*, 1934, 18 374
- 499 Idem Fractura de las apófisis transversas de las vértebras lumbares *Rev med d Rosario*, 1935, 23 675

FRACTURES OF THE PELVIS

- 500 AIMES, A Une variété rare de fracture de l'aile iliaque. *J de méd de Bordeaux*, 1934, 111 40
- 501 ALLEN, W L, JR. Transverse fracture of the sacrum Report of a case *Am J Roentgenol*, 1934, 31 676
- 502 BINET and VERMELIN Fracture du bassin chez une jeune fille *Bull Soc. d'obst*, 1934, 23 81
- 503 DI FRANCO, V Consideraciones sobre un caso de fractura isquiopubiana, subluxación de la cabeza femoral, y fractura de la rama isquiopubiana *Semana méd*, 1934, 2 1098
- 504 GODARD, H and BRINIS Essai de traitement opératoire des fractures du bassin *Rev de chir*, Par, 1934, 53 362
- 505 HAGGART, G E Fractures of the pelvis *Surg Clin North Am*, 1934, 14 1107
- 506 LEPAGE Luxation de la hanche avec fracture du sourcil cotyloïdien chez une femme de soixante-cinq ans *Bull et mém Soc. d chirurgiens de Par*, 1934, 26 28
- 507 MIKIFOROV, P Injuries of the acetabulum and central dislocations of the femur *Ortop i travmat*, 1933, 7 8
- 508 NIESSEN, H Die Drahtextension am Sitzbeinhornren Indikation und Technik *Monatsschr f Unfallheil*, 1933, 40 202
- 509 ORMOND, J K, and COTHMAN, R M A simple method of treating complete severance of the urethra complicating fracture of the pelvis *J Am M Ass*, 1934, 202 2180
- 510 PAPIK, C Management of pelvic fractures *Internat J Med & Surg*, 1934, 47 142
- 511 PERVÈS, J Fracture des ceintures *Rev d'orthop*, 1934, 21 50
- 512 SCHLOEFFEL, W Abriss der Spina iliaca anterior superior als Sportverletzung 1933 Leipzig, Dissertation
- 513 WIDENHORN, H Beckenfraktur und Schenkelkopfnekrose *Deutsche Ztschr f Chir*, 1934, 242 362
- 514 WINTERSTEIN, O Zur Behandlung der Luxatio coxae centralis mit Zug am Trochanter major *Zentralbl f Chir*, 1933, 60 1710

FRACTURES OF THE HIP JOINT

- 515 ADAMS, J D The mechanics and reduction of the displaced upper femoral epiphysis *New England J Med*, 1934, 210 178
- 516 ALBEE, F H The use of the femoral head as a graft in the Albee reconstruction operation. *Internat. J Med & Surg*, 1934, 48 8
- 517 Idem Intracapsular fracture of the neck of the femur *Ibid*, 1933, 46 559
- 518 ARCE, J, and INTROZZI, A S Necrosis isquémica del fragmento proximal en las fracturas intracapsulares del cuello del femur *Semana méd*, 1932, 2 577

STIMSON A REVIEW OF 1933 AND 1934 LITERATURE ON FRACTURES

- 566 KOTRNETZ H. Untersuchungen ueber die Festigkeit der Osteosynthese mit Hilfe des Stiftes nach Smith-Petersen bei experimentell erzeugten medialen Schenkelhalsfrakturen Zentralbl f Chir, 1933, 60 2746
- 567 KROPP, L. Ueber Spontanfrakturen des Schenkelhalses nach Roentgenbestrahlungen wegen Uteruskarzinoms Muenchen. med Wchnschr, 1934, 81 214
- 568 KUMMER, A. Avulsion fracture of the trochanter major due to muscle pull. Nederl Tijdschr v Geneesk, 1934, 78 1324
- 569 LAMBOTTE, A. Le clouage trans-articulaire en ostéosynthese Rev brasil. de cirurg, 1933, 2 425
- 570 LEADBETTER, G W A treatment for fractures of the neck of the femur J Bone & Joint Surg, 1933, 15 931
- 571 LEYER. Pfannendachplastik bei Schenkelhalspseudarthrosen und angeborener Huelfluxation Zentralbl f Chir, 1934, 61 510
- 572 LORENZ, A. Schenkelhalsfrakturen und ihre Behandlung Ztschr f orthop Chir, 1934, 60 427
- 573 MACAUSLAND, W R MACAUSLAND, A R., and LEE, H. G. Fractures of the neck of the femur Surg, Gynec. & Obst., 1934, 58 679
- 574 MACKENZIE, F. An oblique fracture through the head of the femur with posterior and upward displacement of the shaft its treatment by the closed method J Michigan State M Soc., 1934, 33 469
- 575 MARQUES, S. Fratura do colo do femur ão consolidada tratada pela operação de Whitman Arq de cir e ortop, 1934, 1 395
- 576 MASMONTEIL, F. Résultat tardif d'une fracture intracapsulaire du fémur gauche traitée par le double vissage. Nouvel accident fracture trans trochantérienne, résistance du cal ancien Bull et mém Soc. d. chirurgiens de Par, 1934, 26 99
- 577 MATHIEU, P. Indications de la résection arthroplastique de la hanche pour certaines pseudarthroses du col fémoral Bull et mém. Soc. nat. de chir, 1934, 60 222
- 578 MCFARLAND, B. Fractures of the neck of the femur Lancet, 1934, 2 133
- 579 MONTEITH, W B R. Fracture of the femur in a woman of eighty Brit. M J, 1934, 1 192
- 580 MOORE, A T. Fracture of the hip joint (intracapsular) J South Carolina M Ass, 1933, 30 199
- 581 MOUCHET, A., and MOUCHET, A. Les fractures complètes latentes du col du fémur chez l'adulte Presse méd, Par, 1934, 42 329
- 582 NAHRATH, H. Zur Behandlung schwerer Oberschenkel- und Schienbeinkopfbrueche (Pelottenapparat) Zur Abhandlung von Ebner Zentralbl. f Chir, 1934, 61 554
- 583 NIEDERECKER, K. Die traumatischen Verletzungen der Huelfte. Entstehen, Behandlung, und Endausgang auf Grund des 10 jaehrigen Anstaltsmaterials Arch f orthop u Unfall Chir, 1933 33 567
- 584 NIKLAS, F. Technisches zur Behandlung des medialen Schenkelhalsbrueches mit dem Dreilamellenagel nach Smith Petersen Zentralbl f Chir, 1934, 61 247
- 585 PALMER, I. Ueber die Ausherlungsbedingungen der medialen Schenkelhalsbrueche nach Osteosynthese mit einem Nagel aus rostfreiem Stahl, illustriert durch eine histologische Untersuchung Acta chirurg Scand, 1934, 75 416
- 586 PATEL. Pseudarthrose du col fémoral Grefie du péroné. Lyon chir, 1934, 31 639
- 587 PHEMISTER, D B. Fractures of neck of femur, dislocations of the hip, and obscure vascular disturbances producing aseptic necrosis of the head of the femur Surg, Gynec. & Obst., 1934, 59 415
- 588 PLANSON, M V. Fracture sous-trochantérienne du fémur Bull et mém. Soc. d. chirurgiens de Par, 1934, 26 271
- 589 RIXONAPOLI, G. Fratture del piccolo trocantero Arch. med e chir, 1933, 5 17
- 590 SANCHEZ TOLEDO, P. Reabsorción parcial tardía de la cabeza del fémur en un caso tratado por la abducción forzada de Whitman Cir ortop y traumatol, 1933, 1 167
- 591 SCHLATTER, C. Zur Prognose und Therapie der Schenkelhalsbrueche Schweiz Ztschr f Unfallmed, 1934, 28 39
- 592 SEVER, J W. Shipping epiphysis of the head of the femur New England J Med, 1934, 211 1179
- 593 SORREL, E. Kyste multiloculaire tres probablement syphilitique Fracture à son niveau Bull et mém Soc. nat. de chir, 1934, 60 1420
- 594 STOREN, H. Osteochondritis dissecans in den Huelfgelenken als Konstitutionsleiden, sowie ein Fall eines tardiven Demarkationsprozesses nach fractura colli femoris Acta chirurg Scand, 1934 74 491
- 595 TREVES, A. Fracture sous-capitale du col du fémur Traitement orthopedique. Cal osseux. Bull et mém Soc. d. chirurgiens de Par 1934, 26 101
- 596 VOSS, O. Die Operation des Schenkelhalsbrueches Beitr z klin Chir, 1934, 160 291
- 597 Idem Schnittfuehrung zur Operation des Schenkelhalsbrueches 58 Tag d. deutsch Ges f Chir, Berlin, 1934
- 598 WALDENSTROM, H. Necrosis of the femoral epiphysis owing to insufficient nutrition from the ligamentum teres A clinical study mainly based on experiences in the treatment of epiphyseolysis capitis femoris Acta chir Scand, 1934, 75 185
- 599 WARDLE, E. N. Etiology and treatment of slipped epiphysis of the head of the femur Brit. J Surg 1933, 21 313
- 600 WATERMAN, F. Zur Behandlung der Schenkelhalsfraktur nach Sven Johansson Zentralbl f Chir, 1934, 61 2294
- 601 WATERMAN, F. Zur Technik der Behandlung der Schenkelhalsfraktur mit dem von Sven Johansson modifizierten Nagel nach Smith-Petersen Ibid 1934, 61 1186
- 602 WESCOTT, H H. A method for the internal fixation of transcervical fractures of the femur J Bone & Joint Surg, 1934, 16 372
- 603 WRIGHT, R D. A technique for osteosynthesis of fractured neck of the femur by the Smith-Petersen nail Med J Australia 1934, 1 518
- 604 ZENO, L O. Fractura del cuello del fémur (tipo valgus) Bol. Soc. de cirug d Rosario, 1934, 1 135
- 605 Idem Fracturas de la región trocantérica (osteosintesis) Ibid, 1934, 1 241
- 606 Idem Fractura del cuello del fémur Osteosintesis Rev med d Rosario, 1933, 23 762
- 607 Idem Fractura del cuello del fémur, tecnica de la osteosintesis Rev de cirug de Buenos Aires, 1934, 13 165
- 608 ZUP VERTH M. Der Schenkelhalsbruch und seine Behandlung Therap d. Gegenw, 1934, 75 23
- FRACTURES OF THE SHAFT OF THE FEMUR
- 609 ALGLAVE, P. Fracture du tiers moyen du fémur traitée par ostéosynthese métallique perdue chez

- sur sujet de treize ans Bull et mémoires Soc nat de chir 1934, 60 1845
60. ARNDTSON, R. End to end reduction in fractures of the lower extremity Surg Gynec & Obst 1933, 43 577
61. ANTONIADIS, S. A. Contribution à l'étude du traitement des fractures de cuisse par traction sur le squelette à l'aide du fil rapide Presse méd. Par 1934, 41 774
62. BARNES LICK, L. J. Tractions combinées en les fractures de fémur de nos jours Rev de chir de Buenos Aires, 1933, 771
63. CHRISTOPHER, F. Case history Open reduction of fractured femur without internal fixation. Surg Clin North Am 1934, 4 301
64. CLAVELIN BENOIST G. STUBBINS, J. Le traitement des fractures diaphysaires du fémur par la suspension et l'extension continue au moyen de broches de Steinmann ou de Kirschner Résultats obtenus au Val-de-Grâce de 1923 à 1934 Bull et mémoires Soc nat de chir, 1934, 60 1024
65. COLEMAN, H. H. A upper attachment to a musculo-tendinous for treating fractures of the femur in children J Bone & Joint Surg 1933, 5 217
66. COOPER, H. E. Proximal osteotomy of the femur J Bone & Joint Surg 1934, 6 451
67. DUCLOS, P. A propos du traitement des fractures de la diaphyse fémorale Bull et mémoires Soc nat de chir 1934, 60 1033
68. DE FRETTELLI, D. A propos du traitement des fractures de la diaphyse du fémur Bull et mémoires Soc de chirurgiens de Par 1934, 60 990, 993, 996
69. IDELL, L. The results of treatment of the fractures of the diaphysis femoralis anastomosis et vasculectomy combinées Ibid 1934, 60 4
70. FROELICH, T. Traitement des fractures de cuisses obliques. Bull Soc d'obst et de gynéc de Par 1934, 31 370
71. GALLERMAN, J. P. and TRAVENÇOLO, J. C. Fractura espontânea do fémur em um recém-nascido hereditária Rev Assoc méd argent 1934, 43 760
72. GUCCI, G. Trauma schelettrica con lio in frattura vasculectomia combinata Polichin Roma, 1934, 4 103 part 147
73. HOLTZNER, C. Heilungsergebnisse der traumatischen Oberschenkelfrakturen dargestellt an 10 im Jahre 1919-1928 in der Kiefer chirurgischen Universitätsklinik behandelt und eine Arbeit über 910 nachtraumatischen Fieber 123 Kiel, Dissertation
74. HORNBY, G. Meine Spinalschmerzen und operativen Ergebnisse auf Behandlung schlecht gebrochener Knochentrümmer und Verkrümmungen der Beine Arch f orthop u Unfall Chir 1933 34 454
75. HOLLANDER, L. J. A device for transporting patients with reduced fractures of femur J Am M Ass 1934, 101 36
76. LAMERIE, C. Traitement des fractures de la diaphyse fémorale chez l'enfant par l'appareil plâtre plâtre baccro plâtre. Presse méd 1934, 43 771
77. MAGNAN, A. A propos d'un cas de fracture du fémur à l'extrémité inférieure traitée par l'ostéotomie. Considérations sur le traitement orthopédique et le traitement chirurgical de ces fractures Bull et mémoires Soc de chirurgiens de Par 1934, 60 81
78. McWHORTON, G. L. The use of skeletal fixation of the upper femoral in fractures of the shaft of the femur immobilized in a cast. Technique of Steinmann nail insertion through the greater trochanter Surg Clin North Am 1934, 14 887
79. MURPHY, F. G. Osteitis deformans, Paget's disease with fracture of the femur and prompt union J Bone & Joint Surg, 1934, 16 98
80. PATT, D. and FORTIN, J. M. Jr. Fractures of the femoral shaft: a comparative study of the present methods of treatment. Am J Surg, 1934, 45 16
81. PROOST and JONET. Double fracture de cuisse traitée par ostéotomie temporaire Bull et mémoires Soc nat de chir, 1934, 60 1044
82. SCHÖN, W. Zur Behandlung der Oberschenkel-schaftfraktur des Kindes. Verbandsversamml. Technik Arch f klin Chir, 1934, 79 317
83. SOCIAT, R. A propos de traitement chirurgical des fractures de la diaphyse fémorale Bull et mémoires Soc nat de chir 1934, 60 66
84. STANHOPE, A. Die Behandlung der fracture melle mittels eines femoral durch Drahtsternen. Ber bolog chur Ges 1934, 3 8
85. STONEY, J. C. Fractures of the shaft of the femur Med J Australia, 1934, 3 675
86. TIERCE, L. O. Fractures of the shaft of the femur Ibid 1934, 3 679
87. Transactions of the New York Surgical Society. Value of multiple drill holes for non union of fractured femur Ann Surg 1934, 99 710
88. Transactions of the Philadelphia Academy of Surgeons. Acute streptococcal osteomyelitis following a simple fracture of the femur Ibid 1934, 99 1017
89. TURNER, P. Diffuse osteitis fibrosa with spontaneous fracture of the left femur Proc Roy Soc Med Lond 1934, 27 534
90. WHITEL, L. B. and WALLACE, M. B. Fractures of the femur: a statistical analysis of 185 cases. Edinburgh M J 1934, 41 643
91. WOJCICHOWSKI, A. Fracture spontané du fémur et myélite combinée traumatique, pure coelocécrose ou profonde (cas clinique) J de méd de Par 1934, 33 551
92. YONKINSON, A. A propos de traitement chirurgical des fractures de la diaphyse fémorale chez l'enfant. Bull et mémoires Soc nat de chir 1934, 60 970

FRACTURES OF THE KNEE JOINT

93. ALLEN, A. W. Fractures of the patella J Bone & Joint Surg 1934, 16 640
94. ARVAY, M. Deux cas de fracture du plateau tibial externe traités par réposition angulaire et greffe osseuse Résultats tardifs Bull et mémoires Soc nat de chir, 1934, 60 749
95. BECKER, F. Tibialkopf-frakturen. Deutsche Zeitsch f Chir 1934, 243 180
96. BERNARDI, A. Evoluzione clinica ed anatomica delle lesioni longitudinali della rotula. Chir d organi di movimento, 1934, 30 170
97. BURMAN, M. S. Pathological fractures of the second of the knee joint. Internat J Med & Surg 1934, 47 37
98. COVATTA, X. J. and POLITA, A. M. A propos du traitement chirurgical des fractures sous articulaires récentes d'un plateau tibial par enclouement Presse méd, Par 1934, 43 44
99. COTTELL, W. R. COLLEY, A. H. CALLAHAN, J. J. and SCUDIER, C. B. Fractures of the lateral condyle of the tibia. (Classification, pathology and treatment) Surg Gynec & Obst 1934, 30 46
100. DONALDSON, F. S. An unusual fracture of the upper end of the tibia. Canadian M Am J 1934, 31 84
101. DOW, M. Observations on knee injuries of the knee joint. Lancet, 1934, 307

STIMSON A REVIEW OF 1933 AND 1934 LITERATURE ON FRACTURES 29

- 652 ELIASOV, E L, and EBELING, W W Nonoperative treatment of fractures of the tibia and femur involving the knee joint. Surg, Gynec & Obst, 1933, 57 658
 - 653 FREUDENTHAL, P Fracture of the patella without extension defect, simulating simple hemarthrosis Ugesk f Læger, 1933, 95 1373
 - 654 GALLI, G Le fratture longitudinali della rotula Atti mem Soc lomb di chir, 1933, 1 1061
 - 655 HENDERSON, M S Fracture of both internal semilunar cartilages in their posterior thirds, bucket-handle fracture of the internal semilunar cartilage, exploration of the knee without disclosure of definite pathological change Surg Clin North Am 1934, 14 577
 - 656 KALINA, L Diagnosis and treatment of meniscal fractures Chir narz ruchu, 1933, 6 669
 - 657 KAPIS Ergebnisse der operativen Behandlung des schalenförmigen Einbruchs am Schienbeinkopf Zentralbl f Chir, 1934, 61 1116
 - 658 KASUMOV, H A contribution to the late results of the operative treatment of fractures of the patella Vestnik Khir, 1933, 87/89 181
 - 659 LE PAGE Trois observations de fractures de l'extrémité supérieure du tibia traitées chirurgicalement Résultats éloignés d'une réduction sangnante chirurgicale de Paris, 1933, 25 635
 - 660 LERICHE, R Résultat éloigné d'une réduction sangnante suivie de greffes ostéopériostiques dans une fracture de la partie externe du plateau tibial avec destruction étendue du tissu spongieux Bull et mém Soc. nat. de chir, 1934, 60 2
 - 661 LYNK, K H. Ueber Heilung von Kniegelenksbrüchen Arch f klin Chir, 1934, 179 290
 - 662 MAU, C Spontanfraktur der Kniegelenks bei Osteodystrophia (Ostitis) fibrosa Zentralbl f Chir, 1934, 61 2096
 - 663 MÉNÉGAUX, G Fractures et luxations de femur et du tibia (région du genou) Presse méd, Par, 1934, 42 339
 - 664 MICOTTI, R Frattura parcellare della eminenza intercondiloidea della tibia Chir d organi di movimento, 1934, 20 156
 - 665 MILCH, H Surgical pathology of injuries to the knee joint and their surgical indications Med Rec, New York, 1934, 139 656
 - 666 MOREAU, L Un cas de fracture des épines tibiales Ann d'anat path, 1933, 10 1210
 - 667 MURRAY, J R An unusual complication of a fractured patella Lancet, 1934, 2 1278
 - 668 NELLER, C Die isolierte Fraktur des Femurcondylus und operative Behandlung Chirurg, 1933, 5 871
 - 669 NIEDERLE Intra articular fractures of the upper tibial epiphysis Rozhl Chir a Gynaek C 1933, 12 219
 - 670 PEZCOLLER, A Su un caso di frattura longitudinale doppia della rotula Atti e mem Soc lomb di chir, 1934, 2 1629
 - 671 PIOTET, G Traitement des fractures de l'épiphyse supérieure du tibia, avec dislocation des condyles tibiaux Rev méd de la Suisse Rom, 1934, 54 455
 - 672 PLATAREANU, V M, DUMITRESCU, E, and CONDAXE, A Observations on the treatment of fractures of the patella Spitalul, 1934, 54 216
 - 673 RASTELLI, E Frattura sopra e inter-condiloidea del femore e frattura dell'astragalo trattate cruentemente. Riforma med, 1934, 50 43
 - 674 ROZOV, V Fractures of the patella and their treatment. Sov. Chir, 1933, 4 652
 - 675 THIEL, R Ueber Abrissfraktur der Tuberositas tibiae Zentralbl f Chir, 1933, 60 1772
 - 676 ULIN, R Unusual etiology of "fender fracture" New England J Med, 1934, 210 480
 - 677 VENABLE, C S Fracture of the tibial spine Am J Surg, 1934, 24 478
 - 678 WIDENHORN, H and FALLER, A Ueber die Behandlung der Oberschenkelbrüche im Kindesalter Arch f klin Chir, 1934, 179 648
 - 679 WOODWARD, H W A new knee brace J Bone & Joint Surg, 1933, 15 1024
- ## FRACTURES OF THE SHAFT OF THE TIBIA AND FIBULA
- 680 ANDERSON, RANDOLPH L Management of fractures of both bones of the leg South M J, 1934, 27 513
 - 681 ANDERSON, ROGER An automatic method of treatment for fractures of the tibia and the fibula Surg, Gynec & Obst., 1934, 58 639
 - 682 BAILEY, W H A modification of skeletal traction in fractures of the long bones J Bone & Joint Surg, 1934, 16 709
 - 683 BECKER, J Zur Behandlung der Diaphysenbrüche des Unterschenkels Zentralbl f Chir, 1933, 60 1586
 - 684 BENON, R. Fracture de jambe et asthénomanie Rev de chir, Par, 1934, 53 554
 - 685 BOPPE Retards de consolidation traités par la perforation à la manière de Beck Bull et mém Soc nat. de chir, 1933, 59 1243
 - 686 CHATTERJEE, P Treatment of compound fractures of the leg by skeletal traction Indian M Gaz, 1934, 69 487
 - 687 CULMONE, G La cura delle fratture della gamba. Boll Accad lancia Roma, 1933, 6 369
 - 688 DARFEUILLE, L D'une méthode de contention des fragments d'une fracture ouverte de jambe pendant la desiccation de l'appareil plâtré Presse méd, Par, 1934, 42 1210
 - 689 FABER, A Seltener Entstehungsmechanismus eines isolierten Fibulasschaftbruchs Arch f orthop Chir, 1934, 34 458
 - 690 GRISWOLD, R. A Major fractures of the tibia and fibula An apparatus and a method of treatment Surg, Gynec & Obst., 1934, 58 900
 - 691 HARNETT, W L Skeletal traction by means of Kirschner's wire in the treatment of lower limb fractures. Indian M Gaz, 1934, 69 481
 - 692 HERSTEIN, G, KORGANOWA, F, and TURBIN, W Die Dauerresultate und die Arbeitswiederherstellung nach Unterschenkelfrakturen Klin Med, 1934, 2 261
 - 693 ILJAN, A, and ERSTEIN, G The problem of the treatment of diaphyseal fractures of the bones of the leg Nov Khir Arkh, 1933, 29 39
 - 694 MARIQUE, P Sur quelques méthodes des deux os de la jambe J de chir et ann Soc belge de chir, 1934, 6 331
 - 695 MILLER, O L Skeletal distraction in fractures of the tibia and fibula Report of cases South M & S, 1934, 96 408
 - 696 MOONEY, V Fractures of the tibia and fibula. A handy bar useful in the nonoperative treatment. J Bone & Joint Surg, 1933, 15 1018
 - 697 OTAVO, ETCHAVEHERE, A Tratamiento de las pseudoartrosis a cielo abierto (Solé) Bol y trab Soc. de cirug de Buenos Aires, 1934, 18 953
 - 698 PAPIK, C The treatment of fractures of the lower limb by fixed traction Illinois M J, 1934, 66 292

- 699 REXELL, H. Wirtel bei isoliertem Bruch des Schlenke des metatarsophalanen Wadenbeins immer als absolut verlässliche Stütze gegen die Verkürzung. *Zentralbl. f. Chir.* 1934, 6, 590.
- 700 RYAN, C. A. Pseudarthrosis of the tibia. A case report. *J. Bone & Joint Surg.* 1933, 15, 906.
- 701 RYER, A. Congenital pseudarthrosis of the leg. *Vestnik Khir.* 1934, 95/96, 74.
- 702 SARTO, M. An apparatus for extension of the lower extremities. *Nouv. Khir. Arch.* 1934, 30, 566.
- 703 SCHWAB, F. Hahnische Operation angewandt bei Unterschenkel Pseudarthrose. *Modifikation nach Götzell* 1933. *Kiel, Dissertation.*
- 704 SCHRY, Fractures oder Unschonken an der Fibula im Anschluss an besonders sportliche Beanspruchung. *Zentralbl. f. Chir.* 1933, 60, 2739.
- 705 SODROOT, R. D. Fractures of the tibia and fibula. *Lancet*, 1934, 24, 449.
- 706 SODROOT, R. D. A Treatment of compound fractures of the tibia. *Brit. M. J.* 1933, 10, 919.
- 707 SOENERS, R. Das Wadenbein als stützendes Gefäß bei isoliertem Schenkelbruch. *Bemerkungen zur Mitteilung von Regle*. *Zentralbl. f. Chir.* 1934, 61, 666.
- 708 TALBOT, A. Quelques considérations pratiques sur la thérapeutique des fractures dysphymes ouvertes de la jambe. *Rev. de chir. Par.* 1934, 53, 770.
- 709 VAGABO, A. Sopra alcuni casi di frattura dell'arto inferiore trattati secondo i nuovi metodi. *Osp. Ital.* 1934, 22, 370.
- 710 VOLGANSKY, L. E. Results of treatment of fractures of the lower extremities in the isolated Hospital. *Norsk. Mag. f. Lægevidensk.* 1934, 95, 97.
- 711 WERT, W. K. Skeletal traction in treatment of fractures of shaft of tibia and fibula. *J. Am. M. Ass.* 1934, 30, 3096.
- 712 ZENO, L. O. Fractures obliques de la jambe, double immobilisation par compression et tractions. *Rev. de orthop. y traumatol.* 1934, 3, 307.
- FRACTURES OF THE KNEE JOINT AND FOOT
- 713 BANOVIC, E. and ZOLIV, A. Isolated bicondylar fractures of the ankle (Malgaigne). Dupuytren and Desrot fractures and their treatment. *Nov. Khir. Arch.* 1933, 93, 63.
- 714 BARRET, A. Polyfracture (fractures lésées du calcaneus et du second trochantier) éclatement de l'extrémité inférieure du radius avec lésion ouverte du cubitus. Résultat fonctionnel satisfaisant. *Bull. et mém. Soc. nat. de chir.* 1934, 60, 54.
- 715 BYRTON, O. Se di un raro caso di frattura da sci. *Boll. soc. Sci. perinatol. di chir.* 1934, 4, 360.
- 716 BERTOLI, S. Ulteriori osservazioni sulle osteotomie post-traumatiche parafibrosi, con speciale riguardo alla diagnosi differenziale colle fratture parafibrosi. *Arch. di chir.* 1934, 9, 106.
- 717 CARLTON, C. H. Four cases of fracture of the os calcis treated by Bonfield's method. *Proc. Roy. Soc. Med. Lond.* 1934, 2, 57.
- 718 CLARKE, W. and BARRETT, V. Fractures of the os calcis and astragali. *South. M. J.* 1934, 17, 307.
- 719 COTTON, F. J. and MORGAN, G. M. Rupture and displacement after ankle fracture. *New England J. Med.* 1934, 0, 366.
- 720 CUNY, S. Appareil pour réduction et contention des fractures sous-talaires de calcaneus. *Proc. verb. et. Congr. franc. de chir.* 1933, p. 78.
- 721 DARTVILLE, E. Etude des traumatismes fermés du tarse postérieur. *Presse méd.*, Par. 1934, 43, 1.
- 722 D'AYRAC, M. and SARTO, W. Les formes fermées de déplacement externe de l'astragale dans les fractures malléolaires. *Bull.* 1934, 43, 157.
- 723 DE FAYVILLE, D. Traitement des fractures de malléolaires. *Tech. chir.* 1933, 25, 35, 65, 118.
- 724 IDEM. Opération des fractures de malléolaires avec cal vicieux datant de plusieurs années. *Bull.* 1933, 32, 99.
- 725 DELCAMPO, R. M. Fractura del astragalo astragalotomía parcial. *Arch. de pediat. y Urologia* 1934, 3, 104.
- 726 DELCOUR, J. Le traitement des fractures du calcaneus et en particulier des fractures de Dupuytren par la méthode ambulatoire en position antitoxique. *Arch. franc. belges, de chir.* 1933, 34, 37.
- 727 DELTOY, P. Considérations sulla racci creata degli arti di una frattura del collo del piede. *Chir. d. organ. di movimento*, 1934, 30, 307.
- 728 DREX, R. A. Subject du traitement des fractures de calcaneus. *Lyon chir.* 1934, 311, 494.
- 729 DRYGOSKI, H. F. Les fractures de l'astragale et de leur traitement. *Rev. de chir. Par.* 1934, 53, 775.
- 730 IDEM. Fractures of the talus and their treatment. *Soviet Khir.* 1933, 19, 586.
- 731 DREY, E. La fracture du processus postérieur de l'astragale. *Chir. d. organ. di movimento*, 1934, 19, 321.
- 732 EDWARDS. Fractures of the metatarsals. *Internat. J. Med. & Surg.* 1933, 40, 303.
- 733 FALKENBERG, F. Konservativer Behandlung schwerer Sprunggelenksfracturen. *Arch. f. Klin. Chir.* 1933, 76, 1.
- 734 IDEM. Neue Wege der Extensionsbehandlung von gelenkigen Fracturen am distalen Tarsus mit Drahtsegen und ihre Bedeutung zu der Frage der Wirkungszone "direkter" und "indirekter" Fixation am gebrochenen Knochen. *Deutsche Ztschr. f. Chir.* 1933, 241, 30.
- 735 FOSBERG, C. R. O. Acute fractures of the os calcis. Their treatment from the industrial standpoint. *Am. J. Surg.* 1934, 95, 404.
- 736 GOSW, A. and LUKINS, R. G. Fractures of the talus. *Canadian M. Ass. J.* 1934, 31, 357.
- 737 GRONQVIST, R. and COVIELAINE, R. Sur le choix d'une voie d'abord dans le traitement chirurgical des fractures rétroartres sous-talaires de calcaneus. *Presse méd.* 1934, 43, 36.
- 738 GUYOT, E. Os fibule und Urdel (Abstr. des os tibiale). *Arch. f. orthop. u. Unfall Chir.* 1933, 34, 300.
- 739 HENKHOFF, M. and STUCK, W. Fractures of the ankle recent and old. *J. Bone & Joint Surg.* 1933, 15, 883.
- 740 IOWIN, F. Contributo allo studio della lesione traumatica del piede in dotto. *Chir. d. organ. di movimento*, 1934, 19, 364.
- 741 LAFITTE, H. Résultats éloignés d'une résection osseuse des os de la jambe pour fracture de Dupuytren visiblement consolidée. *Bull. et mém. Soc. nat. de chir.* 1934, 60, 255.
- 742 LACROIX, E. H. Quelques considérations à propos de la distorsion talopéronée en les fractures type Maigne. *Rev. de orthop. y traumatol.* 1934, 4, 4.
- 743 LEROY, C. Sur le traitement opératoire des fractures du calcaneus. *Bull. et mém. Soc. nat. de chir.* 1933, 30, 1470.
- 744 LORCA, E. Finitura malata dello scafoide tarsale. *Bull. e mém. Soc. perinatol. di chir.* 1934, 4, 601.

- 745 MASMONTIEL, F. Du traitement des cals vicieux de cou-de-pied Bull et mém Soc d chirurgiens de Par, 1934, 26 634
- 746 MILLER, S R. Fractures in and about the ankle Internat J Med & Surg, 1934, 47 421
- 747 MIYAKE, H. Ueber die Fraktur in der Basis und Tuberositas des V Metatarsalknochens die wir roentgenologisch als relativ häufige Knochenverletzungen bei den Japanern erwiesen haben Arch f jap Chir, 1934, 11 214
- 748 MONTEITH, W B R. A case of march foot (pied forcé) with signs of old and recent injury Brit J Surg, 1934, 21 708
- 749 MOREAU, J. Traitement opératoire des fractures de Dupuytren Arch franco-belges de chir, 1934, 34 170
- 750 MURRAY, C R. The treatment of fractures about the ankle joint. New England J Med, 1934, 211 878
- 751 MUTKIC, L'intérêt de l'allongement du tendon d'Achille dans le traitement sanglant des fractures du calcaneum Bull et mém Soc. nat de chir, 1933, 59 1401
- 752 OSTERLAND. Spontanfrakturen bei Soldaten nach Reichsheerbeobachtungen Arch f klin Chir, 1934, 170 567
- 753 PAAL, E. Fraktur oder Os supranaviculare? Arch f orthop u Unfall Chir, 1933, 34 95
- 754 PISARENITCKI, J. Fussverletzungen beim Absprung mit dem Fallschirm Voennomed Z, 1933, 4 170
- 755 POLI, A. Sulle fratture marginali dei malleoli Contributo clinico-sperimentale Chir d organi di movimento, 1934, 20 82
- 756 POWERS, J H. Traumatic and developmental abnormalities of the sesamoid bones of the great toe Am J Surg, 1934, 23 315
- 757 ROLLO, S. La frattura marginale posteriore della epifisi inferiore della tibia (frattura del terzo malleolo) Ortop e traumatol appar mot, 1933, 5 675
- 758 SAXL, A. Die basale Distorsionsfraktur des 5 Mittelfußknochens Arch f orthop u Unfall chir, 1933, 33 580
- 759 SCHINDLER, E. Calcaneusfrakturen der Leipziger Chirurgischen Universitätsklinik 1926-32 1934 Leipzig, Dissertation
- 760 ŠEROV, M. An adjustable foot plate for the Zupinger splint Nov Khir Arkh., 1934, 30 412
- 761 SICARD, A., and MUTKIC, H. A propos du traitement chirurgical des fractures sous-talamiques du calcaneum J de chir, 1934, 43 374
- 762 SORREL, E. A propos des fractures du calcaneum Bull et mém Soc. nat. de chir, 1933, 59 1472
- 763 SORREL, E., and HENRIET, J. Luxation du pied par rotation externe Rev de chir, Par, 1934, 53 187
- 764 STEWART, J E. Fractures of the os calcis. South M J, 1934, 27 711
- 765 WALKLING, A. Fractures of the leg below the lower third Ann Surg, 1934, 99 1009
- 766 WEBER, L A. Astragalektomia por antigua fractura-luxación de la garganta del pie Rev de ortop y traumatol., 1934, 4 120
- 767 WERTHEIMER, P. A propos des fractures récentes du calcaneum. Lyon chir, 1934, 31 481
- 768 Idem. Trois cas de fractures du calcaneum traitées par ostéosynthèse Ibid, 1934, 31 449
- 769 WESTHUES. Zur Behandlung der Calcaneusfraktur Zentralbl f Chir, 1934, 61 2231
- 770 ZALENSKI, F. The operative treatment of malleolar fractures Polski Przegl. chir, 1933, 12 821
- FRACTURES OF THE JAW
- 771 AKBROIT, J., and LUBARSKI, B. The problem of fractures of the jaws Nov Khir Arkh, 1933, 28 458
- 772 ANHAUSEN, G. Zur Behandlung veralteter dislozierte gehelter Oberkieferbrüche Deutsche Zahn usw Heilk, 1934, 1 334
- 773 BAUMECKER, and BRUNNARIUS. Die funktionellen Ergebnisse der in der Chirurgischen Klinik zu Greifswald behandelten Kieferfrakturen und ihre Unfallbewertung Arch f orthop u Unfall-Chir, 1933, 33 536
- 774 CAVINA, C. Impianti e trapiantazioni nella mandibola e nella mandibola e nella mascella Arch chir oris, 1934, 2 119
- 775 Idem. I principi fondamentali e i risultati del moderno trattamento delle fratture della mandibola Ibid, 1934, 2 361
- 776 CITLER SESE, R. Las fracturas del maxilar inferior Clin y lab, 1934, 25 129
- 777 DE LUCA, A. Contributo alla cura delle fratture della mandibola negli edentuli Arch chir oris, 1934, 2 451
- 778 DUBOV, M. Frakturen des Arcus zygomaticus Sovet. Stomat, 1933, 7 31
- 779 Idem. Primary bone suture in fractures of the lower jaw Nov Khir Arkh, 1934, 31 89
- 780 DUFOURMENTFI, L. Les fractures des maxillaires au cours d'extractions de dents de sagesse. Bull mcd, Par, 1933, 47 844.
- 781 DUNNING, H S. Fracture of the jaw Internat J Med & Surg, 1934, 47 277
- 782 GILL, W D. Fractures of the facial bones with special reference to involvement of the paranasal sinuses and orbits South M J, 1934, 27 197
- 783 GOINARD, P., and CURTILLET, A. La fracture du maxillaire inférieur à l'union de la branche montante et du corps Bull mcd, Par, 1934, 48 447
- 784 GROHS, R. Aklinomykose nach einer Unterkieferfraktur Ztschr f Stomatol, 1934, 32 427
- 785 HOLLER, W. Ueber die Anwendung geteilter Verbände in der Kieferbruchbehandlung Deutsche Zahn usw Heilk, 1934, 1 203
- 786 IPSEN, J. Eine Behandlung von Kieferbrüchen Zentralbl f Chir, 1933, 60 2840
- 787 JEZEK, K. Injuries of the upper jaw sustained in civil life Bratislav lek Listy, 1934, 14 243
- 788 KAPPIS, M. Ueber den Verrenkungsbruch des Unterkieferknochens Zentralbl f Chir, 1934, 61 814.
- 789 KLEINBERG, S. Fracture of the hyoid bone Ann. Surg, 1934, 99 547
- 790 KRONN, C. Die Behandlung von Fractura colli mandibulae besonders bei Kindern und die Resultate von einigen Fällen Deutsche Zahn usw Heilk., 1934, 1 16
- 791 LEFMANN, R. Zur Kasuistik der isolierten Frakturen des Processus condyloideus des Unterkiefers 1933 Hamburg, Dissertation
- 792 MACK, C H., and CONNELLY, J H. Fractures of the mandible U S Nav Med Bull, 1934, 32 31
- 793 MOOREHEAD, F B. A better method of treating fracture of the jaws J Am M Ass, 1934, 102 1655
- 794 POST, K. Sur Therapie der Luxationsfraktur des Unterkieferknochens Zentralbl. f Chir, 1933, 60 2118
- 795 REICHENBACH, E. Die Verrenkungsbrüche des Unterkiefergelenkknopfs Deutsche Zahn usw Heilk., 1934, 1 31

796. SCHLAEFFER H. Kleinstbrüche Fortschrit d Zahnheilk 1933, 9 607
797. SEITZERT E. Aus dem Gebiet der Kieferchirurgie, Unterkieferabschnitt Chirurg 1934, 6 449
798. SYLVESTER, N. Fracture, with laceration, of the osseous mandibulo and its surgical treatment Acta chir Scand, 1934, 74 379
799. VELIKANOV M. Isolated fractures of the processes coronoidei of the lower jaw. Soviet Stomat 1933, 7 21
800. VORSCHEWITZ, J. Zur Behandlung der komplizierten Unterkieferbrüche Med Welt, 1934, 8 1473
80. WASSERMAN, M. Ueber Luxationsfrakturen des Kiefergelenkes Deutsche Kieferchir 1934, 1 27
- MISCELLANEOUS
802. DODD H. Gangrene following fracture (notching gas gangrene) Brit J Surg 1934, 21 246
803. FRANK. Die Schenkelfrakturen. Munchen Med. Wochenschr., 1934, 8 74
804. FREE W. Ueber Fettembolie bei Knochenoperationen 1933 Leipzig, Duvet 100
805. FETTER P. and BOMANN P. Hémie postopératoire ac compagnant une fracture du sternum Rev de chir Par 1934, 11 487
806. GONZALEZ, L. Sulla possibilità di consolidazione delle fratture spontanee da metastasi neoplastiche Policlin Roma 1934, 40 sec chir 680
807. GUNDO D. M. Clinical studies in the pathology of bone IV A plated fracture Edinburgh M J 1934, 41 43
808. HOCKE, A. Heilen der Frakturen 1-knochiger Gliedabschnitte schneller als der 2-knochigen? 933 Leipzig, Dissertation
809. KAKITA, N. The history of orthopedic surgery in the Ukraine Joseph Wallfisch Orthop Litvian 1933, 7 54
810. KAPLAN, K. B. Multiple fractures associated with blue sclera. J Bone & Joint Surg 1934, 6 635
811. LOVENSBERG L. Disruption fracture of spinal processes as a trade injury Acta chirurg Scand 1934, 74 434
812. MIZANO, E. Contributo alla storia delle fratture patologiche in sede di crisi ossee Boll Accad Lincei Roma, 1934, 7 220
813. MICHIELI, E. and STOVANI, F. Lesioni traumatiche nello sport del pugilato Boll e socia Soc per nomine di chir 1933, 3 683
814. MURRAY L. A. Multiple spontaneous idiopathic symmetrical fractures Ann J Roentgenol 1934, 31 64
815. NARBY G. A contribution on the cases of olecranon associated with simple fracture Spital, 1933, 53 466
816. OPPOLDT, R. Die Fettembolie der Yachtwelt nach Trauma. Ein Beitrag zur Fettembolie des grossen Kreislaufes, insbesondere des Gehirns Arch f klin Chir, 1934, 79 176
817. RITZER, Z. An analysis of the bone injuries sustained in the year 1933 in the Petrovski and Lenin mortal factories in Dnepropetrovsk Ortop i traumat 1934, 6 69
818. RINALTA, F. de A. Notas sobre cirugía de guerra. Med Ibera, 1934, 16 307
819. RYMAN, E. L. Union of pathological fractures following metastatic hypernephrosis. Am J Cancer 1934, 20 601
820. SEMAKOV M. Fettembolie bei Knochenbrüchen. Fortschir Romanov 1934, 313
821. SCHAYO O. Der Nachweis der traumatischen Fett embolie bei Rente und der Höhe der toxischen Fettmenge Arch f klin Chir 1934, 179 463
822. SCHWAB G. Ueber den Mechanismus der typischen Hintersportverletzungen unter spezieller Berücksichtigung der Einwirkungen aus vom Fraktur 1934 Zürich, Dissertation
823. V. VEC, B. M. The clinical diagnosis of fat embolism Am J Surg 1934, 26 27

ABSTRACTS OF CURRENT LITERATURE

SURGERY OF THE HEAD AND NECK

HEAD

Bucy, P. C. Intradiploic Epidermoid (Cholesteatoma) of the Skull. *Arch Surg*, 1935, 31: 190

Epidermoids are relatively rare neoplasms which occur most frequently in and about the nervous system particularly in the cranial portion. They may arise beneath the scalp, within the diploe, between the bone and the dura, beneath the arachnoid, particularly at the base of the brain, or within the ventricles. It is generally agreed that they take their origin from ectodermal rests resulting from incomplete separation of the neural from the surface ectoderm.

Epidermoids which arise within the diploe are rare, only thirteen having been reported in the literature up to the present time. The author reports three cases. Although the tumors are frequently large and commonly compress the brain, they rarely produce neurological symptoms. A swelling is seen on the surface of the skull. In the majority of cases such a swelling of some degree has been noted for many years. Commonly it has been present since childhood. It is associated with a palpable defect in the skull, the edges of which are often raised to form a bony ridge about all or part of the tumor. The mass is soft and may be fluctuant. Pulsation depends on the intactness of the inner table of the skull.

Röntgen-ray examination reveals a defect in the bones of the skull, which may or may not be regular. The defect is caused by erosion of the inner and outer tables by the tumor arising in the diploe. Operation discloses an encapsulated cyst containing white lamella with the appearance of mother-of-pearl and a more or less extensive whitish-yellow caseous mass. The capsule is invariably thin and friable. Often it can be separated from its bony crater and the dura only with difficulty.

Most important in the treatment is complete removal of the cyst wall at the time of operation. The wall is composed of stratified squamous epithelium and is the only living, growing, part of the neoplasm. Failure to remove it completely will result in recurrence. Sargent has pointed out that even though the inner table of the skull seems intact, it is almost invariably fractured or eroded over a small area and through the defect the tumor tends to spread beneath the bone between the latter and the dura. Therefore, at operation, exploration of the epidural space should always be done in order to be certain that all of the tumor has been removed.

ARTHUR S. W. TROFF, M.D.

EYE

Anderson, W. B. Ophthalmomyciasis. *Am J Ophthalm*, 1935, 18: 609

More than 100 cases of the presence of larva in the conjunctival cul de sac have been reported. The presence of larva in the interior of the eye is very rare, only 18 cases being found in the literature. In 1920, Behr elaborated Hope's original terminology, proposing the term "ophthalmomyciasis externa" to designate cases in which larva are found in the orbit but external to the globe and the terms "ophthalmomyciasis interna anterior" and "ophthalmomyciasis interna posterior" for the condition in which the larvae are located respectively in the anterior chamber and the posterior segment.

Anderson reviews the cases of ophthalmomyciasis interna recorded by others and reports a case of his own in detail. In 10 of the cases the larva was in the anterior segment, and in 9, in the posterior segment. The history in several cases indicated that the larva was deposited in or about the eye by a viviparous fly, and that boring into the globe began at once. The latter explains the pain in the author's case. All except 2 of the patients were children.

The symptoms, signs, diagnosis, and prognosis depend more upon the location of the larva in the eye than upon its nature. In 2 cases in which the larva was in the anterior chamber the diagnosis of tuberculosis was made before it appeared. In this location there seems to be a fair chance for its successful removal. When the larva is in the subretinal tissues, glioma or tuberculosis is often suspected and the eye removed. When the larva moves into the vitreous, the injury to the eye is less severe and the prognosis more favorable.

The author's case is the second to be reported in North America, the second of ophthalmomyciasis in an adult to be recorded, and the only case to be recorded in which there was no loss of vision after eighteen months.

EDWARD S. PLATT, M.D.

Lugli, L. Late Traumatic Rosette Cataract. *Arch Ophthalm*, 1935, 14: 392

Lugli draws the following conclusions regarding traumatic rosette cataracts:

1. The rosette cataract is a well-differentiated form of cataract which is formed in the anterior cortex as the result of trauma.

2. The rosette cataract must be considered as stationary.

3. The ultimate involvement of the lenticular fibers must be considered as related to the trauma.

only in the sense that the trauma was the cause of grave lesions of the anterior segment which resulted in a disturbance of the physiological nutrition of the lens
 LEONIE L. MCCOY M.D.

Duke-Elder, Sir S., and Davson, H.: The Vitreous Body and Glaucoma. *Brit J Ophth* 915 9 433

The theory that a swelling of the vitreous body is the cause of the increased intra-ocular pressure in primary chronic glaucoma has had wide acceptance. This theory will account for the shallow anterior chamber and the atrophy of the choroid and ciliary body and seems reasonable on a physicochemical basis because of the gel nature of the vitreous body. The authors discuss the conflicting experimental evidence.

As glaucoma is not associated with any detectable abnormality in the hydrogen-ion concentration of the blood, experiments along this line are of no value with regard to conditions *in vivo*. The presence of specific ions is often more important than the hydrogen-ion concentration. In this article the authors report studies of the physicochemical properties of the vitreous body in relation to the possibility of swelling of the vitreous body *in vivo*. In a later article they will discuss the adequacy of the theory of swelling of the vitreous body from an ophthalmological point of view and in conjunction with a new theory based on different physicochemical assumptions.

Experiments for the determination of swelling of the vitreous body associated with water uptake showed that there was no increase in the volume of hydration when the vitreous body was treated with solutions of sodium oleate and laurate or when the hydrogen ion concentration was changed to the alkaline side of normality. Changes in the elastic properties of the vitreous body on treatment with potassium sulphate, potassium sulphocyanate, and dilute hydrochloric acid indicate that a decreased stability of the gel structure is produced by these reagents. The results of the latter experiments indicate that the stability and hydration of the vitreous are bound up with the physical state not only of the residual protein, but also of the mucoprotein and perhaps of the albumin and globulin.

When the similarity in the elastic and ultramicroscopic properties of the vitreous body and dilute plasma clots is considered, the balance of evidence suggests that the vitreous body was formed as a clot. Hence the earlier assumption that this body represents a stage in a continuous process of swelling from an initial xerogel is shown to be unwarranted. If the theory of a swelling of the vitreous body is still to be maintained it must be on the basis of the alternative theory of a cyclical mechanism which was outlined earlier.

Attempts at peptization of the vitreous protein were unsuccessful. However this failure must not be interpreted as violating the second theory of vitreous swelling, as postmortem changes in the ultra-

microscopic picture of the vitreous body has been described which may be interpreted as being due to denaturation changes.

Goedbloed's denial of the gel nature of the vitreous body is repudiated inasmuch as the basis of his denial, on the count of the irreversibility of the phenomena associated with the vitreous body, almost tacitly rules out practically all substances belonging in this class.

While the theory that a swelling of the vitreous body is a factor in chronic glaucoma is definitely weakened by the results reported in this article, the alternative mechanism presented is reasonable from the physicochemical standpoint. However the hypotheses involved are more numerous and less capable of experimental verification. If peptization of the vitreous proteins could be achieved, a basis for the experimental verification of this alternative theory would be established.

EDWARD S. PLATT M.D.

KAR.

Kohrak, H., Lindsey, J. R., and Portman, H. B.: The Value of the Reflex Contraction of the Muscles of the Middle Ear as an Indicator of Hearing. *Arch Otolaryngol* 935, 51 665.

The authors report experiments carried out on rabbits to explain conflicting physiological observations in animals and man which have led to the opinion that the reflex of the tensor tympani muscle observed in animals cannot be compared with movements of this muscle in man. A separation of the contractions into a number of qualitatively and quantitatively different kinds is proposed and the conclusion drawn that there is no longer any reason to doubt the occurrence of movements of the tensor muscle in man similar to those occurring in animals. The almost complete similarity of the reflex of the tendon stapedius is cited, and new observations on this reflex are reported.

In the authors' experiments, tests of the reflex of the tensor tympani muscle as an indicator of the sensation of hearing demonstrated that, in rabbits, the acoustic contractions of the tensor muscle are almost always present and allow easy quantitative measurement by the procedure followed in a clinical test with the audiometer. Quantitative comparison of the contractions in different animals does not always show satisfactory uniformity.

The findings of observations on one animal continued for several days showed a high degree of constancy and a comparison of the response of the left and right tensor muscles disclosed no noteworthy variation.

Small changes of the position of the animal and of the position of the pinna did not produce noteworthy differences. Therefore it is important to avoid attaching too much importance to slight changes in the position of the loud speaker or the animal. The application of the sound may be carried out in the natural way instead of by rubber tubes.

SURGERY OF THE HEAD AND NECK

The comparison between the readings of two equally trained observers showed a constancy which was about equal to that in clinical tests of hearing.

Besides the simple observations on the tensor muscle, the authors made records of the contraction, by means of which they were able to determine the amount of the response to a variety of over-threshold irritations. The proportion between the irritation and the reflex under various conditions is shown.

In addition to the experiments on rabbits, observations on the stapedius reflex in man were carried out. For the first time it was possible to compare the curve of hearing and the curve of the reflex response of the stapedius muscle quantitatively and to express the difference in decimals. The inconstancy in the distance between the two curves is probably due to individual peculiarities of the middle ear. However, the relationship between the two curves is such that a good curve of the reflex of the stapedius muscle may be taken to indicate a relatively good curve of hearing. This might be used clinically—cases of malingering, for example.

JAMES C. BRASWELL, M.D.

Pevcelon, R., and Morel, A. Forty-Two Cases of Cancer of the External Ear (*À propos de quarante-deux cas de cancer du pavillon de l'oreille*). *Rev. de chir.*, Par., 1935, 5: 547.

In a period of ten years the authors observed forty-two cases of cancer of the external ear. In the twenty-nine in which the histological type of the lesion was determined with certainty there were fourteen spinal cell, seven basal cell, and four mixed cell epitheliomas, three sarcomas and one basal cell melanotic epithelioma. Sixty per cent of the patients were farmers. In seven cases the entire external ear was involved, in six, only the lobe, in six, only the tragus, in two, only the auriculomastoid fissure, and in twenty one, only the auricle. Morphologically, the lesions could be divided into proliferative, ulcerative, and destructive types. Extension on the surface occurred in the form of one or several small hard points in the skin near the main tumor but separated from it by intact skin. Deep penetration to the cartilage and bone was found only in the late cases. Extension to lymph glands involved were (1) the preauricular and superficial mastoid, (2) the superior carotid, and (3) the lymph nodes in the parotid gland. In none of the cases were the submaxillary glands involved. In the majority there was a complicating infection.

In the treatment, electrocoagulation may be employed for small lesions without demonstrable lymph gland involvement and as a palliative measure in cases of large inoperable tumors. Because of infection the presence of cartilage, and the high incidence of ray-resistant tumors, irradiation therapy is limited to recurrences, postoperative treatment, and palliative treatment. The best treatment is surgical removal of part or all of the ear, with or without the removal of lymph glands. In cases in which

the lymph nodes in the parotid are involved complete removal of the parotid is indicated.

Of the reviewed cases, two received no treatment, eight were treated by electrocoagulation, two, by irradiation, six, by limited operation of the ear with removal of cervical lymph glands, and ten by operation and radium irradiation.

Only eleven known cures were obtained. Four have lasted from one to three years, two, from three to five years, and five, more than five years.

The author concludes that surgical treatment gives the best results. When physical agents are employed, the immediate result may be favorable, but after a time the extension of the lesion begins again. Of chief importance in the prognosis are the histological type of the lesion and lymph-gland involvement.

MAX M. ZIMMERER, M.D.

NOSE AND SINUSES

Kramer, R., and Som, M. L. True Papilloma of the Nasal Cavity. *Arch. Otolaryngol.*, 1935, 22: 22.

The authors add five cases of papilloma of the nasal cavity to the eighty-one they were able to collect from the literature.

The term "papilloma" is applied to four histologically distinct types of tumor. These are (1) the mucous polyp, (2) the benign cutaneous wart, (3) the papillary carcinoma, and (4) the true papilloma or papilloma dura.

The true papilloma is a non-malignant neoplasm of epithelial origin and should not be confused with the other types. It appears in the form of a grayish-red indurated papilliferous newgrowth which bleeds easily on manipulation and arises from the nasal accessory sinuses and deeper structures of the nasal cavity. It has a tendency to recur and to undergo malignant degeneration. Grossly, it is a reddish-gray lobulated mass protruding into the nasal cavity, usually from the ethmoidal region or antrum. Sometimes all of the nasal chambers are filled and the tumor extends to the nasopharynx. There is no invasion of the surrounding structures, but pressure atrophy is common. True papillomas are of two main types, viz., a cauliflower like type consisting of conglomerations of reddish gray nodules attached by a narrow stalk to a tumor base, and a diffuse type, composed of numerous small single nodules dispersed over the mucosa. Histologically the tumor presents a predominant epithelial proliferation with only a fine connective tissue groundwork and attains a width from five to nine times that of the normal epithelial covering. The covering may be columnar, ciliated, squamous, or transitional epithelium, and may show goblet cells. The type is dependent upon metaplastic changes associated with extrinsic influences such as the effects of pressure and infection. The symptoms may be those of any nasal infectious process or nasal obstruction.

The diagnosis is always made microscopically. The treatment indicated is total extirpation by

diathermy followed by radiotherapy. Recurrence and malignant transformation are characteristic.

JOHN F. DILLON, M.D.

MOUTH

Parreira, H., and Nunes de Almeida, J.: Two Cases of Rhabdomyoma of the Tongue (Dois casos de rhabdomioma da língua). *Arquivo de pediatria* 1934, 6: 581.

Of 4,730 cases in which histological examinations were made at the Portuguese Institute of Oncology up to June 30, 1933, 3,096 of which were cases of tumor, rhabdomyoma was found in only 2. In both of the latter the tumor occurred in the tongue. After briefly reviewing the histories of all of the other cases of rhabdomyoma of the tongue which they were able to find in the literature, 24 in number, the authors report the 2 cases coming under their own observation. They describe the histological findings in their cases in detail and supplement the description with photomicrographs.

One of the authors' patients was a girl of sixteen and the other a woman of fifty-one. In both cases the tumor had developed in the tongue without a fibrous capsule. The neoplasm in the first case differed from all of the tumors described in the literature in showing an angiomatous structure which would have led to its clinical classification as an angioma. Its macroscopic appearance and the frequent hemorrhages accompanying its development supported this diagnosis, but histological examination showed that it was made up for the most part of striated muscle tissue and presented syncytial masses in the intercapillary spaces. The authors are of the opinion that it originated from displaced embryonic tissue.

In the second case the parenchyma was made up almost entirely of syncytial masses and cells of granular protoplasm of different sizes and shapes, some of them arranged in cords or fibers. In some places there was longitudinal striation and in others transverse striation with different degrees of differentiation. The authors believe that in this case the tumor developed from pre-existing muscle fibers as the result of loss of differentiation of highly differentiated tissue. ALBERT GOSWAMI, M.D.

NECK

Zackwer, I. T., Davison, L. W., Kaller, T. R., and Livingston, C. B. II. The Pituitary in Experimental Cretinism. I. Structural Changes in the Pituitaries of Thyroidectomized Rats. *Am. J. M. Sc.* 1935, 190: 145.

Thyroidectomy performed on young rats results in stunting of the body growth and, in the pituitary gland, an increase in the solids and fluid content causing an increase in the weight of the gland, a marked reduction or nearly complete disappearance of acidophiles, an increase in the number of basic staining cells, and the appearance of numerous large

cells filled with hyaline substance. When stained by the special technique employed by the authors, the "thyroidectomy cells" seem to be transformed cells containing blue granules.

The "thyroidectomy cells" appear to be secreting and storing a secretory product which has a hyaline appearance.

It is suggested that the stunting of body growth in the cretin rat may be due to loss of acidophiles of the pituitary which in turn depends upon loss of the thyroid secretion. The acidophiles seem to disappear by degeneration rather than by degeneration. The discovery of an abundance of thyrotrophic hormone in cretin pituitaries depleted of acidophiles rules out the acidophiles as producers of the thyrotrophic hormone. Since there is no atrophy of the adrenals in cretin rats, it is reasonable to conclude that the acidophiles cannot be the producers of the adrenotropic hormone. When thyroidectomy is incomplete, the described changes are slight or absent.

PAUL STARR, M.D.

Workman, E. W., and Miller, G. G.: The Effect of Tracheal Occlusion on the Hypertrophy of Thyroid Transplants and Remnants. *Brit. J. Surg.* 1935, 3: 142.

In eleven guinea pigs subjected to subtotal thyroidectomy from slight to marked hypertrophy of the remaining thyroid tissue was found from fifteen to nineteen days after the operation.

In seven guinea pigs subtotal thyroidectomy was done and one lobe was transplanted. After from fifteen to twenty-one days, six of the animals showed moderate hypertrophy in both the thyroid remnant and the transplanted lobe.

In four animals, stenosis of the trachea to one-fourth its normal diameter was produced by a silk ligature. Ten days later the thyroid showed colloid involution.

In five guinea pigs, tracheostenosis was produced and subtotal thyroidectomy was performed simultaneously. After from thirteen to eighteen days two of the animals showed prominence of the colloid phase and three showed thyroid hypertrophy.

In six guinea pigs subtotal thyroidectomy was done first and tracheostenosis was produced later. From fifteen to twenty-one days after the subtotal thyroidectomy the remnants of the thyroid showed from a trace to extreme hypertrophy. From seven to thirteen days after the production of the tracheostenosis three remnants showed reversion to the colloid phase and three were still hypertrophied.

In seven guinea pigs, one and three-quarters lobes of the thyroid were removed and one lobe was transplanted. After fifteen days, biopsy was done on the thyroid remnant and the transplant. The sections showed from moderate to marked hypertrophy. Tracheostenosis was then produced and the animals were sacrificed from ten to twelve days later. In three of the animals the remnant and transplant showed colloid reversion. In the remaining four, the changes were slight. PAUL STARR, M.D.

SURGERY OF THE HEAD AND NECK

Rabinovitch, J., Pearson, J. R., and Louria, H. W.
A Clinicopathological and Experimental Study
of the Functional Structural Relationship of
Goiter *Endocrinology*, 1935, 19 383

Of 294 exophthalmic goiters, 222 (75.5 per cent) showed definite evidence of anatomical changes in the gland indicative of increased glandular activity. Of 50 nodular toxic goiters, 42 (84 per cent) showed definite hyperplastic changes in the parenchyma of the individual nodules. Of 200 nodular and colloid non-toxic goiters, active hyperplasia was absent in 184 (92 per cent).

From these findings of clinical and anatomical study the authors conclude that there is a certain parallelism between the function and structure of the thyroid gland. Whether or not iodine was administered pre-operatively in the cases reviewed is not stated. The functional and anatomical changes produced in animals by iodine, cabbage, and the thyrotropic hormone are cited. PAUL STARR, M.D.

Hirsch, I. S., and Baum, S. M. The Evaluation of
the Roentgen Treatment of Laryngeal Carcinoma. Report of Cases *Radiology*, 1935, 24 281

In recent years the roentgen treatment of laryngeal carcinoma has been definitely improved, but as a rule it has been used only in advanced and hopeless cases. Early intrinsic lesions have been treated by surgery. Irradiation seems to produce as good results as surgery and has the advantage of preserving the voice.

In addition to laryngoscopy, the authors recommend roentgen examination as a guide and aid in the diagnosis and treatment. They resort to tracheotomy only in very advanced cases with total obstruction.

The technique of irradiation employed by them consisted of a 180-kv constant potential, 4 ma, a skin-target distance of 60 cm, and filtration with 2 mm of copper and 1 mm of aluminum. Both the right and the left cervical areas were irradiated. The mucous membrane reaction may be used as a bio-

logical control. In the cases with good results the total dose varied from 5,000 to 8,600 r. Six daily treatments were given each week. A dose sufficient to produce complete exfoliation and complete destruction of the mucous membrane was administered.

The authors' material consists of thirteen cases of proved laryngeal carcinoma. The patients were males ranging from thirty-five to seventy-two years of age. Cervical adenopathy was present in eight cases, and in three cases tracheotomy was done before the treatment of the larynx was begun. Four of the lesions were intrinsic and nine were extrinsic. Regressive changes occurred in practically all of the cases. Eight patients died—two with intrinsic lesions and six with extrinsic lesions. One of those who died survived in comfort and free from the disease for three years. In the cases of the others, recurrences developed after from five to twelve months. Of the five patients who are still alive, two were treated for an intrinsic lesion and three for an extrinsic lesion. Two have a good voice and show no evidence of recurrence after forty-four months. One, who was re-treated after eighteen months, is alive and well twenty-four months after the initial treatment. In the case of one of the patients who died of laryngeal edema no evidence of cancer was found on histological examination of the larynx.

The authors conclude that in cases of intrinsic, cordal, glottic, or subglottic, non-infiltrating, keratinizing, fully differentiated, squamous-cell epithelioma a clinical cure can be obtained. Surgery gives equally good results in such cases, but with less conservation of function and with an average operative mortality of about 15 per cent. In cases of extrinsic lesions involving the surrounding tissues and glands, the prognosis is usually unfavorable, but roentgen therapy may sometimes produce a clinical cure and in hopelessly advanced cases will result in palliation, comfort, and prolongation of life.

EARL E. BARTH, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Turco, A.: *Atlanto-Occipital Decompression by the Method of Ody in Severe Injuries of the Skull* (La traspunzione atlanto occipitale nei traumatismi gravi del cranio secondo Ody). *Ann. del 2. chir.* 1935 14 223

Turco reports the first case of severe skull injury to be treated by Ody's operation in Italy. The patient fractured the base of his skull by falling off a motorcycle and presented marked bulbar pressure symptoms. The operation of Ody consists in draining the cysterna magna by removing the arch of the first cervical vertebra and resecting the dura. Drainage is then continued for several weeks, the length of time depending on the amount of cerebral edema.

EDUARDO T. LACROIX, M.D.

Oliverson, H. and Urban, H.: *Meningioma of the Ethmoid Plate* (Ueber Meningioma der Siebbeinplatte). *Ber. Klin. Chir.* 1935, 161 34

In a group of 759 verified brain tumors there were 125 meningiomas, of which 9 (7.5 per cent) originated in the ethmoid plate. Meningiomas of the ethmoid plate are usually of considerable size. Their weight varies between 50 and 150 gm. They are usually bilateral. Of the 9 reviewed by the authors, only 5 were unilateral. All were spherical. In most cases psychic disturbances such as an abnorma tendency to play childish tricks and a loss of ethical sense were dominant. These may be due to compression of both frontal lobes, bilateral compression of the arterial perforations or pressure of the corpus callosum against the cerebral hemisphere. Several of the patients presented a psychosis similar to that described by Korsakoff, with loss of memory for most recent events. Other manifestations were depression, aphasia, inability to move, attacks of stupor, polyuria, incontinence, and loss of inhibition. There is no psychic disturbance which is characteristic of these tumors. A frequent early symptom is a disturbance of the sense of smell, but this may be unnoticed by some patients. This is followed by frontal headache. Later there are often visual disturbances with which the psychic symptoms usually begin.

In 7 of the cases reviewed by the authors roentgen examination revealed sclerotic of the wings of the sphenoid and the ethmoid plate. In 6 cases a defect and destruction of the floor of the anterior cranial fossa were also found. In 4 cases the pituitary gland was displaced backward. In all 9 cases ventriculography demonstrated a backward and upward displacement of both anterior horns and the third ventricle.

When possible, operation was performed under local anesthesia. Otherwise avertin anesthesia was used. To obtain a better approach the anterior portion of the frontal lobe was resected. The tumor was coagulated and exteriorized, and after ligation of the capsular vessels it was removed. There was often so much hemorrhage that several blood transfusions were necessary.

Of the 9 patients, 1 died of hyperthermia. The tumor was removed completely in all cases. Four of the patients were blind before the operation. In these there was no improvement in vision. The psychic disturbances disappeared completely in all but 1 case. Of the 8 patients surviving, 1 was not benefited, 3 were cured except for amaurosis, and 4 were cured except for a unilateral defect in the field of vision. (Toscani) JACOB E. KLEIN, M.D.

PERIPHERAL NERVES

Starr, A. P., and Carson, W.: *The Peripheral Manifestations of the Sympathetic Nerve-Sheath Tumor* (Neuroblastoma). *Am. J. Cancer* 1935 34 751

This discussion is limited to the specific encapsulated tumor composed of highly differentiated tissues which are characteristic of the nerve sheath within which it develops, a neoplasm variously described as a "neurinoma," "perineurial fibrosarcoma," "schwannoma," and "peripheral glioma." The authors add 52 tumors of this type to the 194 they were able to find in the literature. They state that the diagnosis is rarely made before operation.

In some of the cases there were other stigmas of von Recklinghausen's disease. The presence of stigmas in 28 per cent of 50 cases is a sufficiently high incidence to make denial of the relationship impossible.

The tumors appear most frequently on the anterior surface of the upper extremities and the posterior surface of the lower extremities corresponding to the distribution of the main trunks. They have been found also in the hand, face, scalp, neck, trunk, eye, orbit, the upper respiratory and alimentary tracts, the gastro-intestinal tract and the intrathoracic and retroperitoneal regions. They have never been found to occur in the feet, the genitourinary system, the lungs, the esophagus, or the rectum.

They usually develop in the perineurium or the epineurium which therefore forms the capsule. If a larger trunk composed of several smaller elements is involved, the tumor may be found as an excrescence from the side or may occur within the main trunk with many of the smaller branches spread out over its surface to considerable distance. Under

SURGERY OF THE NERVOUS SYSTEM

the former conditions it is apt to be rounded, and under the latter, fusiform. The nerve fibers are never within the tumor. As a rule irregular slender tangled dendrites pass into the superficial portion of the capsule. The neoplasms vary in size from microscopic nodules to tumors 6 cm in diameter. With the exception of the visceral tumors, which appear to have mildly infiltrative powers, they are usually well encapsulated.

In agreement with the varied appearance of the cut section, the microscopic picture shows variations. There are 2 distinct cell pictures which the authors designate as Type A and Type B. The tissue of Type A is characterized chiefly by an abundant fibrillar structure presenting numerous and very characteristic pictures. The tissue of Type B shows no definite arrangement of the cells or the fibers and because of the collection of microscopic rounded cystic spaces is of a very loose texture. It is the absence of the collagen bands and the axis cylinders and the presence of the microscopic degenerations which cause this tissue to differ from the tissue composing the usual neurofibroma of von Recklinghausen. Most of the tumors are composed of Type A and B tissue in varying amounts.

The symptoms are not remarkable. Most important is the presence of a mass. In about 25 per cent of the cases there are sensory disturbances. When the tumor involves an important nerve structure motor disturbances occasionally occur. The mass is usually discrete, soft, and to a certain extent movable. If it lies within a nerve trunk, it is movable from side to side but not in the direction of the long axis of the nerve. In some of the tumors a definite fluctuation is noted. Some are of an hour-glass shape because they begin in the spinal canal and project through its interstices. By their growth they may cause symptoms of pressure on the spinal cord.

The treatment is surgical. As the tendency toward recurrence is slight, it seems safe to advise every effort to avoid unnecessary injury to important nerve trunks, even at the risk of failure to remove all of the neoplasm. JOHN WILTSIE EPTON, M D

Dew, H R. Sarcoma of the Peripheral Nerves. *Australian & New Zealand J Surg*, 1935, 5 48

The author records some of his experiences with recent cases of sarcoma of the peripheral nerves and reviews the history of the study of such tumors. These tumors are of the following clinicopathological types: (1) solitary neurogenic sarcoma, (2) neurogenic sarcoma associated with neurofibroma or von Recklinghausen's disease, and (3) neurogenic sarcoma in other tissues, often classified as fibrosarcoma, but the specific histogenesis of which has not been proved. The author reports cases of tumors of Types 1 and 3.

The gross and microscopic pathological changes are described. The solitary neurogenic sarcomas are usually well encapsulated, hard, and homogeneous, and show little tendency to degenerate. They gen-

erally involve the large nerve trunks. They are often freely movable. On histological section their sarcomatous nature is recognized with little difficulty. Often whorls are seen. Unless true nerve cells are found or definite evidence of neurofibroma can be demonstrated, the tumors should be classed as fibrosarcomas. Ewing states that when the bulk of cells exceeds the matrix, the tumors grow actively and tend to recur. Myxomatous change and telangiectasis may be seen. Tumors of the telangiectatic variety seem prone to form pulmonary metastases. Almost complete replacement of the normal tissue cells by myxoid material is often seen, especially in recurrent tumors.

The grade of malignancy is difficult to interpret, but in general the more fibrous variety of tumor runs a long clinical course until it is disturbed by operation or injury. When more giant cells and invasion of blood vessels are seen, the tumor is usually more malignant. All sarcomas of peripheral nerves are at times very malignant. Common complications are metastasis by way of the blood stream and involvement of the subcutaneous tissue. However, metastasis to other viscera is uncommon, and metastasis to lymph nodes almost unknown.

With regard to the histogenesis of the cells of these tumors opinions differ. According to Penfield and Mallory, the neoplasms are of mesodermal origin, whereas according to Masson and Verocay they are derived from the Schwann cells and are therefore of ectodermal origin.

The age incidence usually ranges from ten to forty years. The history is often fairly short. A slow, quietly growing tumor may suddenly undergo rapid change. Pain is the most outstanding symptom. It is usually of a dull and aching character and radiates along the nerve involved. There may be evidence of a lesion of nerve conduction. The symptoms are progressive. In from 60 to 70 per cent of the cases, the patient's attention is directed to the area involved. The tumor is usually discrete and hard and can be moved in every direction except lengthwise with the nerve involved. Softness indicates myxomatous or degenerative changes. The stigmata of von Recklinghausen's disease may be evident. In the differential diagnosis it is usually necessary to rule out benign neurofibroma, fibroma, and synovial cyst. The rate of growth may help. The benign tumors are rarely painful.

The treatment should be as radical as possible. Amputation should be done well above the neoplasm without any attempt to save the nerve or part. The author condemns biopsy, even with the electric loop. Simple inspection is usually sufficient to determine the pathological changes and the risk of spreading the cells of the tumor is very great.

The majority of the tumors are very radiosensitive. However, the consensus of opinion favors radiotherapy after adequate operative procedures have been carried out. A beneficial effect of irradiation therapy on recurrence is regarded as dubious.

KENNETH W THOMPSON, M D

SYMPATHETIC NERVES

Farreira, H., and Prates, M.D.: Two Cases of Ganglioneuroma (Dois casos de ganglioneuroma). *Arquivos de pediatria* 1954, 6: 601.

In the first case reported by the authors the ganglioneuroma occurred in the pelvis of a girl sixteen years of age and in the second in the bed of the right kidney of a girl of eight years. Tumors of this type are most common in females under thirty years of age. They are rare after the age of forty. In the authors' cases the neoplasms were benign in structure and course and uneventful recovery followed their removal without postoperative roentgen irradiation.

Both of the tumors were made up of nerve fibers and cells in different degrees of growth and differentiation. The tumor in the first case was richer in cells than that in the second and therefore showed

more definitely than the second the disproportion between the number of fibers and cells which is usually mentioned in descriptions of such neoplasms. This disproportion is differently interpreted. By some it is attributed to disappearance of cells as a result of degeneration, whereas by others it is believed to be due to an increase of fibers by branching. In both of the authors' cases degeneration was evidenced by vacuolization. In the tumor in the first case there were cells of the lymphoid type. These cells have been observed in both malignant neuroblastomas and simple benign ganglioneuromas. They have recently been considered embryonic nerve cells, this theory being supported by the fact that in some cases transition forms between these cells and differentiated nerve cells have been found.

The localization and structure of the tumors indicated that they arose from the sympathetic nervous system. ARTHUR GOME MONES, M.D.

SURGERY OF THE THORAX

CHEST WALL AND BREAST

Agueci, A. The Bleeding Breast (La mammella sanguinante) *Clin chir*, 1935, 11 575

Agueci presents a historical, clinical, and pathological review of the bleeding breast and reports 5 cases found among 500 cases of breast conditions seen in Forni's clinic, Venice, during the past six years. In 4 of the 5 cases there was an obvious lesion of the breast—a polymorphic cancer, an intracanalicular carcinoma, or cystic disease. In the fifth case, that of a woman thirty-five years old who gave a history of daily bilateral bleeding for two months, there was no abnormality of the breasts and recovery resulted under ovarian therapy.

The mechanism of hemorrhage from the breast in the absence of demonstrable lesions and in vicarious menstruation is still unknown. Agueci discusses the relation to such hemorrhage of fragility of the blood vessels, hypertension, and decreased ovarian function.

In the treatment it is necessary to consider first any accompanying local and general condition. If a tumor is present, the bleeding is of secondary importance. If there are no clinically appreciable lesions, all diagnostic methods should be used. The most important are transillumination of the breast and microscopic examination of the hemorrhagic secretion. If no breast lesions are found, the possibility of functional, circulatory, hematopoietic, or endocrine disturbances or the initial stage of a tumor must be considered. Operation is not always advisable. For the cases of young women, Agueci advises watchful waiting with ovarian therapy and, if indicated, hypotensive therapy for a few months. Such cases scarcely ever develop indications for a radical operation. In the cases of old women, radical operation is justified as the danger of malignancy is greater and the breast has lost its functional importance.

The article is followed by a short bibliography.
M. E. MORSE, M.D.

Adair, F. E., and Stewart, F. W. The Value of Pre-operative Irradiation in Breast Cancer Studies on Eighty-One Operable Cases. *Ann Surg*, 1935, 102 254

This report is based on eighty-one cases of operable cancer of the breast in which pre-operative irradiation was given. Thirty-nine cases were treated with the 4-gm radium element pack and forty-two with high-voltage (200 kv) roentgen rays. As a rule operation was delayed from two to three months after completion of the irradiation. In the thirty-nine cases treated with the radium pack the irradiation was applied (1) to the breast

mesially, (2) to the breast laterally, (3) to the axilla anteriorly, (4) to the axilla direct, and (5) to the axilla posteriorly. In some cases an ulcer occurred which did not heal. In these, operation was delayed from three to four months. The operations were radical and the removed tissue was carefully examined. In eleven (28 per cent) of the thirty-nine cases the tumor had completely disappeared at the time of the operation, no trace of cancer tissue being found by the most careful study.

The irradiation effect was graded from 0 to 4 according to the amount of destruction of the tissue. Profound changes after the irradiation were shown by 46 per cent of the cancers of the breast but only by 19.5 per cent of the nodes. Because of the inadequacy of the effect on the axillary nodes a new method of irradiating the axilla was devised. In this procedure a rubber catheter containing 6 silver tubes of radium emanation in tandem and having a radium-bearing area of about 11 cm was drawn into the tract by means of a long uterine forceps introduced behind the pectoralis muscles, parallel with the axillary vein, and brought out in the region of the sternoclavicular joint. In order to avoid tearing the axillary vein or its branches the clamp must be introduced slowly. This method of irradiation was used in thirty cases. In the beginning the treatment consisted of 3 skin erythema doses 3 mm from the source of the radium. This was increased to 7 skin erythema doses without producing neuritic symptoms. It is still too early for conclusions regarding the results.

Complete disappearance of the tumor depends to a great extent on the size of the neoplasm. Tumors with a diameter of 2 or 3 cm are much more apt to regress completely than larger tumors. One of the disadvantages of the use of the radium element over deep X-ray irradiation is that the ports are of insufficient size. The authors suggest that, as the axilla is such a large space, roentgen irradiation might be preferable to the use of the radium pack.

In some of the forty-two cases treated with the 200 kv roentgen-ray machine, 1,200 r were given to each of six ports, in others, 1,500 r per port, and in a few, 1,800 r per port. The doses were somewhat smaller than those administered with the radium pack, but complete microscopic disappearance of the tumor occurred in seven (16.5 per cent) of the cases.

The authors conclude from this investigation that pre-operative irradiation will definitely increase the incidence of five-year cure and should be employed in all cases of cancer of the breast which are complicated by pregnancy, cases with bulky axillary disease, and the cases of young women.

ALTON OCHSNER, M.D.

TRACHEA, LUNGS, AND PLEURA

Catalot, F.: Anatomical Repercussions of Ligation of the Pulmonary Artery on the Heart, Liver and Kidneys (*Répercussions anatomiques de la ligation dell'arteria polmonare sul cuore, fegato e rene*). *Arch Ital di chir* 1935, 40: 150.

The possibility of producing sclerosis of the lung parenchyma by ligating the pulmonary blood vessels has interested surgeons as a practical method of curing chronic processes in the lung. Clinical application of the method has been tried. In a limited number of cases ligation of the main secondary branch of the pulmonary artery in the treatment of bronchiectasis and unilateral tuberculosis has yielded favorable results. The pulmonary veins were first ligated with good results in 1931 by Edel and Hirschner. These surgeons preferred to ligate the veins because, after arterial ligation, a collateral circulation develops and with the restoration of an adequate blood supply the lung may become the site of an even more serious pathological change. The veins have practically no anastomotic branches. Not all the veins should be ligated—only a sufficient number to produce definite stasis in the region of the diseased parenchyma.

The author reports experiments which he carried out to determine the effect of such ligations on other organs, especially the heart, liver and kidneys, the organs which manifest the first changes following changes in the respiratory tract.

A series of ligations was made in dogs and rabbits. In some of the animals only a branch of the right pulmonary artery and in others the main right artery was ligated. The mortality in both groups was rather high. At the end of the survival period the various structures were studied anatomically.

Following ligation of a branch of the right pulmonary artery definite changes were found in the immediate region of the lung supplied by that branch. Almost at once the color of the parenchyma changed to a dull red. Gradually hepatization took place, but areas of softening often developed within the solidified lung. Eventually almost all of the tissue involved became fibrosed and contracted. Histological examinations showed early thrombosis of the branches involved and retrogressive changes in the parenchyma. Gradually new connective tissue problemated, contracted and became sclerosed. Because of the collateral circulation in the peripheral regions, not all of the parenchyma supplied by the ligated branch underwent these changes. Thus collateral circulation may be derived from the bronchial and pleural branches. The adjacent lung parenchyma developed a compensatory emphysema.

The circulatory obstruction which necessarily follows such changes in the lung has an effect on the right half of the heart. The right ventricle, which must work more, undergoes gradual hypertrophy and dilatation. Tricuspid insufficiency may result and lead to dilatation and hypertrophy of the right auricle. This in turn leads to stasis in the inferior

vena cava and all structures draining blood into it. It is probable that this mechanism accounted for the changes observed by the author in the liver and kidneys. These changes were slow in their development. They consisted of a gradual sclerosis. At times, however, similar changes were noted in the liver and kidneys in the absence of cardiac decompensation and evidences of passive hyperemia. These changes are not explained.

The animals subjected to ligation of the main trunk of the right pulmonary artery did not survive sufficiently long to allow accurate observations of the effect of the procedure.

Because of the dysfunction of the heart consequent to the ligation the author regards it as questionable whether this method of therapy will find more than a limited application. A. Louis Ross, M.D.

Pruvost, Leblanc, Delort and Coleroux: Clinical and Roentgenological Types of Pulmonary Air Cysts of Medium Size and Anular Shape (*Formes cliniques et radiologiques des kystes aériens de moyenne taille et de forme annulaire*). *Press Méd. Par* 1935, 43: 139.

Timely recognition of air cysts of the lung may prevent diagnostic errors with disastrous results. The larger cysts are difficult to distinguish from spontaneous pneumothorax. Very small cysts may be the cause of spontaneous pneumothorax. Cysts of medium size may be mistaken for large emphysematous bullae or, if infected, for abscesses.

This article deals with cysts of medium size. It is quite possible that such cysts may have contained fluid primarily and that their mucous content was evacuated later to give place to air. The cysts may be single or multiple and may vary in size and shape. Their chief distinguishing feature is the fine geometrical annular element demonstrable in the roentgenogram. Unlike acquired bronchiectases, they are quite often accompanied by bronchial stenosis. Congenital anomalies explain the frequent partial or complete impermeability of the bronchi to lipiodol.

The authors divide the cysts in their cases into the following five groups: (1) latent cysts, (2) cysts complicated by hemoptyses, (3) non-suppurative but infected cysts, (4) suppurative cysts, and (5) air cysts and saciform bronchial dilatations.

The latent air cysts are rare and because of the lack of clinical symptoms and the vagueness of the roentgen findings are often not recognized. The roentgenogram made without lipiodol shows few annular shadows. In some cases these cysts are permeable to lipiodol and there is no reaction of the adjoining tissues. Lenk also has stressed the absence of pulmonary markings.

A history of hemoptysis before the advent of mucopurulent or purulent expectoration is relatively frequent. Such hemoptyses may easily be attributed to tubercles.

Non-suppurative but infected cysts may cause slight reactions in the surrounding tissues giving rise to functional symptoms as well as slight physical

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manifestations They are characterized by a pulmonary focus with adventitious murmurs, a slight mucopurulent expectoration, and a protracted course that may suggest tuberculosis. In some cases the condition resembles polycystic disease of the lungs.

Suppurative cysts lack the regularity of outline presented by non-suppurative cysts, and when an abscess has formed the diagnosis is possible only at operation on discovery of the cyst walls or by histological examination. Suppurative cysts may be mistaken for purulent pleurisy.

Whereas air cysts are usually to be recognized roentgenologically by the regular annular elements visible without lipiodol, such cysts occur in association with sacciform bronchial dilatations demonstrable only with lipiodol and producing the characteristic picture of acquired bronchiectases. The author reports in detail two cases of such a combination and suggests a causal relationship between the conditions.

EDITH SCHANCHE MOORE

Ferrari, R C Considerations Regarding Total Pneumonecctomy A Proposed New Technique
Extrapleural Exopneumopexy (Consideraciones sobre la neumectomía total Proposición de una nueva técnica operatoria La exoneumopexia extrapleural) *Bol v trab Soc de ciruj de Buenos Aires*, 1935, 19 189

This abstract is based on a review of Ferrari's article by Pavlovsky. The proposed innovation is a resection of the ribs in the anterior cutaneous flap which would facilitate exteriorization of the lung without traction on the mediastinum and reduce the chance of contamination of the pleural cavity. Ferrari has not as yet worked out the method on animals or tried it in clinical cases, but it impresses Pavlovsky as ingenious and practicable.

The operation may be done in one or two stages. The steps in the one-stage procedure are (1) preliminary pneumothorax, (2) the formation of an anterior osteoplastic flap with its base toward the sternum, (3) exploration of the pleural cavity and destruction of adhesions, (4) mass ligation of the pedicle of each lobe of the lung, (5) internal resection of the ribs in the flap, (6) internal resection of the posterolateral portion of the thorax, (7) phrenicectomy, and (8) exteriorization and suturing of the lung. In the first stage of the two-stage operation the lung is wrapped in gauze or rubber tissue after destruction of the adhesions. The ribs may be resected at this time or at the second operation. On completion of the first stage the thorax is closed. In the second stage a posterior thoracoplasty is done, the thorax re-opened, the hilum ligated, and the lung exteriorized.

Ferrari's article of fifty-four pages with twenty-four plates and an extensive bibliography presents a detailed analysis of twenty-six cases of total pneumonecctomy from the literature and two personal cases. It deals particularly with operative methods and the causes of death.

Wagner, W Attempts to Treat Pleural Empyema with Caustics (Behandlungsversuche des Pleuraempyems mit Laugen) *59 Tag d deutsch Ges f Chir*, Berlin, 1935

In every method of treating pleural suppuration, it is essential to meet three requirements. First, the pus must be evacuated, second, the change in the balance of pressure in the thorax caused by the disease must be corrected without damaging the heart and lungs, and third, provision must be made for re-expansion of the lung. Moreover it is obvious that in a disease process as severe as pleural empyema attention must be directed also to the general condition.

The first two therapeutic requirements, namely, evacuation of the pus and re-establishment of the normal pressure relationships in the chest, may be of varying urgency depending on the individual case. It must be borne in mind that in the first period of the illness the mortality of operation performed during the first days is considerably higher than that of delayed operation. Therefore the attempt should always be made to treat the empyema at first conservatively by puncture and closed drainage. Operation should be done only after these methods have failed. In this way very unfavorable pressure changes in the chest and catastrophic effects on the heart and lungs can be avoided. The development of a certain degree of mediastinal rigidity prevents mediastinal flutter and considerably diminishes the danger.

The evacuation of the pus from the pleural space by puncture and suction drainage is often incomplete, especially when the pus is thick and tough and contains large quantities of fibrin. However, the removal of tough pus and fibrin is frequently incomplete even when rib resection is done. Therefore the effort has repeatedly been made to overcome this difficulty by irrigation. The selection of different sites for resection of ribs has failed to influence the incomplete evacuation. For irrigation of the pleural space to remove the pus many different solutions have been used. Dyes, disinfectants, and indifferent solutions such as methylene blue, gentian violet, rivanol, trypanflavin, optochin, iodine solution, Pregel's solution, and salt solution have been employed. The attempt is made thereby not only to remove the pus mechanically, but also to decrease and hinder the growth of micro-organisms and this way sterilize the pleural cavities.

In order to loosen and liquefy the fibrin in the pleural spaces, Hermannsdoerfer allowed pepsin-hydrochloric acid to work on it. Schmerz recommended the use of gauze tampons soaked in lysol to remove pus and fibrin masses. By this means he succeeded in loosening and dissolving the coagulated fibrin. It is apparent that rapid and complete empyema has a very favorable effect on the patient as thereby the mechanical factors which retard or prevent re-expansion of the lung are removed and the tendency toward the formation of indurations with

M E MORSE, M D

their contraction processes is reduced to the minimum.

The author reports a series of test-tube experiments in which he studied a series of fluids and solutions with regard to their action on fibrin and determined that complete solution of fibrin could be obtained with dilute caustics. He used highly diluted solutions of sodium and potassium hydroxide and found that after a few hours the fibrin had completely disappeared after it had been transformed into mucoid masses from the periphery inward. This effect was obtained with concentrations of from $\frac{1}{4}$ to 1 per cent.

Other test tube experiments confirmed the author's theory that the fibrous crusts already formed could also be dissolved by dilute concentrations of caustics. For this purpose Wagner subjected indurations from 1 to 2 cm. thick to the action of such solutions in the incubator. After from eight to fourteen days he observed their complete liquefaction and transformation into fluid masses. A direct attack on indurations already formed is of great aid in the treatment of pleural empyema as thereby the inelasticity of the lung produced by its confinement by the fibrous wall can be corrected and the lung brought to complete re-expansion. Bronchial cartilage can also be dissolved by such dilute caustics. Within from thirty six to forty-eight hours the cartilage softens and the bronchial opening falls together. The importance of this effect is in the treatment of bronchial fistulas is obvious.

In studies of the effect of caustic solutions on the bacterial flora and bacterial growth it was found that the pneumococci and hemolytic streptococci, which constitute the chief causes of pleural empyema, were in part greatly damaged and in part completely inhibited whereas the growth of influenza bacillus and the staphylococci was not affected. These investigations, which were made by Kairies, were carried out with both culture broths and culture plates. The results checked closely.

In spite of the favorable results of these test-tube experiments, the clinical use of caustics in the treatment of empyema still seemed hazardous to the author. He therefore proceeded with great caution, but found that his fear was unjustified. His proceeds in the following manner:

Two or three days, and sometimes somewhat later after typical rib retraction in which open pneumothorax is avoided, irrigations are begun with a 1 per cent solution of sodium hydroxide introduced at body temperature and without pressure through the drainage tube into the pleural space.

In order to diminish the irritation of the pleura as much as possible the patient is given from 1 to 12 drops of cocaine from thirty minutes to three quarters of an hour before the irrigation. By this means it is possible to suppress the cough reflex to within tolerable limits. Before the irrigations are begun it is especially important to rule out the presence of a bronchial fistula. This is done in the following manner:

Immediately before the irrigation with the caustic, from 10 to 20 c. cm. of a dye solution are introduced into the pleural cavity and allowed to act for a few minutes. Indigocarmine solution, which is known to be harmless in urological conditions, is used for this purpose. The appearance of blue stained mucus or pus in the mouth when the patient coughs re-establishes the presence of a communication between the pleural cavities and the bronchial tree.

In the absence of a bronchial fistula, from 75 to 150 c. cm. of sodium hydroxide solution are introduced without pressure into the pleural cavity with a syringe and allowed to act for a few minutes. By several involuntary or voluntary coughs the irrigation fluid is evacuated and with it a large part of the pus and fibrin masses present in the pleural cavity. In several cases the author was able to empty from 500 to 600 c. cm. of pus from the pleural cavity with one irrigation. In his last case he evacuated 800 c. cm. of pus and fibrin. The irrigations can be repeated only two or three times a week. The pus quickly loses its tenacious, thick character and becomes thin. It is important not to neglect care of the skin as the caustic character of the fluid may injure it. The skin may be protected by a thick application of ointment in the region of the rib retraction.

In cases of chronic empyema in which indurations have already formed, stronger concentrations are used and are allowed to remain in the pleural cavity for several hours. This leads to slow solution and gradual disappearance of the indurations.

Caustic solutions have been used by the author also in the presence of bronchial fistulas, although with special precautions. A series of bronchial fistulas were completely healed by this treatment in a short time.

So far Wagner has treated twenty cases of pleural empyema by irrigation with caustic solutions. Most of them were cases of postpneumonic empyemas in which pneumococci and streptococci were the chief bacteria found. The caustic solution had a very good effect and considerably shortened the healing time. In six cases the empyema was healed within four weeks, and in three cases within forty days. In two cases of chronic empyema in which thoracic fistulas were present when the irrigation was begun the treatment failed to close the fistula.

In tuberculous empyema the result was not as directly successful but in one case a thoracic fistula was closed temporarily. One patient who had been sick for months and was in *extremis* when he entered the hospital died of cardiac failure three days after the operation and twenty four hours after the pleural irrigation.

The follow-up of several cases showed only very slight induration and in some cases good, almost normal respiratory expansion of the thorax and mobility of the diaphragm.

Although the number of cases of pleural empyema which he has treated by irrigation with a caustic

solution is small, the author recommends further trial of the method

(W WAGNER) PHILIP SHAPIRO, M D

HEART AND PERICARDIUM

Opokin, A , and Kolju, K The Diagnosis, Clinical Course, and Operative Treatment of Echinococcosis of the Pericardium (Zur Diagnostik, Klinik und operativen Behandlung des Herzbeutel-echinococcus) *Arch f klin Chir*, 1935, 181 696

The occurrence of echinococcosis in the organs of the thoracic cavity is estimated at from 10 to 11 per cent of all cases of echinococcosis, and it is pointed out that the percentage is higher only in the liver. Within the thoracic cavity the most commonly affected organs are the lungs, the pleura, and the mediastinum, while the heart is the least often involved.

The authors have found a total of ninety cases of echinococcosis of the heart and eighteen cases of echinococcosis of the pericardium reported in the literature. In most of these the diagnosis was made on the autopsy table, but in several cases echinococcosis of the heart or pericardium was suspected because of the roentgen findings.

The authors add three cases of their own, two of which were diagnosed by roentgenograms. The third case was believed to be echinococcosis of the lungs

and was operated upon accordingly when echinococcosis of the pericardium was recognized. The operation was followed by a completely satisfactory result. Along with the clinical findings of heart pounding, cough, dyspnea, heart attacks, and the laboratory findings of eosinophilia and a positive Kasson reaction, the most characteristic features were observed in the roentgenogram. Overlying the apex of the heart there was a rounded shadow from 3 to 4 cm in diameter. It pulsated with the heart beat and had symmetrical borders. The periphery of the shadow was ring-like and corresponded to the calcified echinococcus shell. Change in position did not alter the relation of this shadow to the heart shadow. Another point in favor of the diagnosis of echinococcosis was the fact that the roentgenogram was unchanged after one year, which was important in differentiating the condition from a malignant neoplasm.

Two of the three patients were not treated. One of them was completely restored to his usual activities in one year. The third patient was operated upon under the diagnosis of echinococcosis of the lung, but instead echinococcosis of the pericardium was found. The operation was successful. It is possible that this may be the only instance where an operation was performed in a case of echinococcosis of the pericardium and a cure was obtained.

(RIESS) J DANIEL WILLEMS, M D

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

King, E. S. J.: Incisional Hernia. *Br J Surg* 1935 23 35.

The essential feature in the development of an incisional hernia is the escape of some of the contents of the abdomen, usually a small piece of omentum. This may occur through a small tear in the peritoneum or through a small hiatus between sutures. In the presence of infection the escape of omentum may be due to early solution of the catgut. The sac, which is formed secondarily around such tissue, may become larger and show the characteristic phenomena of a pulsatile hernia. The adhesions so frequently found in incisional hernias are not secondary adhesions but due as a rule to the localized rather than the completely generalized formation of the secondary sac.

SAMUEL KARY, M.D.

Karlstrom, H.: Mesenteric Vascular Occlusion. *A J Surg* 1935 10 17.

The author recognizes four main causes of occlusion of the mesenteric vessels: (1) trauma, (2) external pressure, (3) embolism and thrombosis, and (4) inflammatory or degenerative occlusion of the lumen. The most common of these are thrombosis and embolism. The most important causes of arterial occlusion are endocarditis and arteriosclerosis. Thrombosis probably occurs in the mesenteric arteries in the same way as in the coronary vessels and elsewhere. Recently thrombo-angitis obliterans has been reported as an important factor. In venous thrombosis the condition may be primary in the mesenteric veins and ascend into the larger branches or the reverse may be true. Intestinal infections of any type may underlie ascending thrombosis.

The superior mesenteric artery is the site of the greatest number of the lesions probably because it is larger than the inferior, comes off above the latter and is almost parallel with the aorta.

Gangrene of the bowel occurs in spite of an apparently profuse blood supply, probably because of the anemia produced by the violent spasmodic contraction of the intestine set up by acute blockage of an artery. A slow extensive arterial occlusion may be compensated while a small sudden clot may cause infarction. The infarction is almost always hemorrhagic. When an arterial occlusion is slight or occurs gradually the area affected is supplied by the arteries above and below. Otherwise only sufficient blood is brought in by the collaterals to cause the part to become congested. In venous occlusion the hemorrhagic infarction is due to the fact that the blood has no outlet and there is retrograde thrombosis of the arteries. The part of the intestine affected is thick-

ened, dark red to black, and soon becomes gangrenous. The lumen contains thick tarry blood. The bowel wall is gorged with blood, and the mucosa may be ulcerated. The serous coat may be covered by an inflammatory exudate and the peritoneum contains bloody fluid. There may be a general peritonitis. The mesentery is thickened and may contain large hemorrhagic patches.

Occlusion of small branches of the mesenteric vessels is relatively frequent. It causes acute abdominal pain and partial obstruction which ceases within a short time. Such a history is often obtained from old arteriosclerotics.

The syndrome presented in cases of mesenteric occlusion consists of pain all out of proportion to the physical signs, fever, leucocytosis, and the usual signs noted in early bowel obstruction.

The author distinguishes two types of mesenteric thrombosis—medical and surgical. By "medical thrombosis" is meant a small occlusion insufficient to cause intestinal gangrene. As a rule the only symptom is pain. If intestinal symptoms occur they are those of partial obstruction and gradually clear up. Medical thrombosis is almost never diagnosed and, according to Connor, no pathological data have been found to substantiate it.

By "surgical thrombosis" is meant infarction sufficient to cause gangrene of some part of the bowel. The symptoms are more severe and more progressive than those of medical thrombosis and are followed by signs of intestinal obstruction, peritonitis, and death unless operation is performed. The nature of the condition can be recognized with certainty only in the presence of vascular disease or thrombosis elsewhere. In the present state of our knowledge a diagnosis of intestinal obstruction with the possibility of mesenteric vascular occlusion would seem sufficient.

When gangrene of the bowel occurs, the condition is surgical. The best time for operation would be after complete demarcation has occurred and before absorption has taken place. However, as the condition is not diagnosed, this stage cannot be recognized. The chief requirement at operation is removal of all of the affected bowel and mesentery with enough viable tissue to prevent recurrence or progression of the condition.

The author reports eight cases of mesenteric vascular occlusion observed at the City Hospital, Binghamton, N. Y. in the past ten years in which there was one recovery. The mortality of the condition has been reported by others at from 37 to 95 per cent. Among the eight cases reported by the author there was one in which the condition was due to thrombo-angitis obliterans.

MARCELL F. METZGER, M.D.

Donaldson, J K., and Stout, B F Mesenteric Thrombosis *Am J Surg*, 1935, 29 208

Mesenteric thrombosis is only rarely diagnosed before operation In 335 cases of intestinal obstruction, McIver found its incidence to be about 3 per cent. The authors discuss the recognition of venous and arterial mesenteric thrombosis as distinct clinical entities

Since venous mesenteric thrombosis may occur as a complication of intussusception, volvulus, the absorption of non-bacterial toxins or chemicals from the intestinal tract, general physical disability associated with acute infectious fevers, trauma, paralytic ileus, and emboli, it is obvious that the picture may be complicated. As a rule, its onset and course are relatively slow and it begins with pains of a moderate colicky nature. A striking feature of the syndrome is the disproportion between the abdominal tenderness and the duration of the symptoms on the one hand and the degree of abdominal rigidity on the other The abdomen is usually widely and definitely tender to deep palpation The leucocytes are only moderately disturbed in the early stages, but become markedly altered in the terminal stages Occult blood is usually present in the feces Vomiting may supervene In uncomplicated cases the temperature range remains low Intestinal fluid levels are usually absent Unless the condition is borne in mind, its recognition in the early stages when the results of surgery are best will be impossible or very difficult

Arterial thrombosis is much more rapidly fatal than venous thrombosis and demands operation within a very few hours of the onset of gangrene if recovery is to ensue Venous thrombosis is probably more common than the arterial type and in a certain percentage of cases may be followed by recovery without surgery The authors believe that quite often it is possible not only to recognize the presence of mesenteric thrombosis but also to differentiate between the venous and arterial types

JOHN W NUZUM, M D

GASTRO-INTESTINAL TRACT

Delario, A J A Roentgenological Follow-Up of 125 Cases of Peptic Ulcer, with Clinical and Laboratory Findings *Am J Roentgenol*, 1935, 34 190

In the Stomach Clinic of St Joseph's Hospital, Paterson, New Jersey, a diagnosis of peptic ulcer was made in 139 cases seen in the past three and a half years After treatment, 125 of the patients with this diagnosis were studied again by roentgenological, clinical, and laboratory methods In the cases of 20 (16 per cent), the final diagnosis was not peptic ulcer Of the remaining 105 patients, 7 had gastric ulcers alone, 3, both gastric and duodenal ulcers, 4, parapyloric ulcers, 88, duodenal ulcers, and 5, gastroduodenal ulcers Two were suffering from pulmonary tuberculosis or tuberculosis of the gastrointestinal tract in addition

The incidence of cure based on control of the symptoms was as follows tube treatment and hospitalization, 86 per cent, Sippy diet and hospitalization, 50 per cent, ambulatory treatment, 54 per cent The incidence of relief of the symptoms and improvement shown by roentgen examination was tube treatment and hospitalization, 69 per cent, Sippy diet and hospitalization, 30 per cent, ambulatory treatment, 38 per cent The incidence of healing shown by roentgen examination was tube treatment and hospitalization, 39 per cent, Sippy diet and hospitalization, 20 per cent, ambulatory treatment, 23 per cent The incidence of complete relief of symptoms with roentgen demonstration of a healing was tube treatment and hospitalization, 93 per cent, Sippy diet and hospitalization, 0 per cent, ambulatory treatment, 57 per cent The author states that these figures are probably too low because they do not include many cases in which the ulcer healed but the scarring produced in healing was sufficient to cause symptoms

Delario discusses the etiology of peptic ulcer with reference to body type, temperament, race, sex, age, and gastric acidity, and reviews the theories regarding the etiology of the pain due to the lesion In the reviewed cases in which improvement was obtained the average age of the patients was thirty-seven and six-tenths years whereas in those showing no improvement it was thirty and four-tenths years

The indications for surgery were acute hemorrhage, perforation or perforating lesions, obstruction, persistent pain unrelieved by medical measures, and repeated severe hemorrhages The author believes that in cases with serious bleeding and great loss of blood, operation should be performed as soon as possible, but in cases in which the bleeding is slight and is not significantly lowering the blood count or hemoglobin, medical therapy should be used

SAMUEL J FOGELSON, M D

Bsteh, O Pneumatosis Cystoides Intestini (Zur Kenntnis der Pneumatosis cystoides intestini) *Arch f klin Chir*, 1935, 181 707

The author describes two cases of the rare condition called pneumatosis cystoides intestini, which were observed by himself The patients were operated upon because they presented symptoms of a beginning perityphlitic infiltration In the first case, in addition to a clear, serous exudate in the free peritoneal cavity and numerous, larger than bean-sized inflammatory lymph nodes in the mesocolon the cecum and ascending colon were found to be extremely edematous and thickened as high as the hepatic flexure and, on palpation, the characteristic crepitation was elicited The findings in the second case were essentially similar, except that the changes in the colon extended even beyond the hepatic flexure The appendix and terminal ileum were entirely normal in both patients Resection of the diseased bowel segments and ileocolostomy resulted in uneventful recovery of both patients The author considered both cases to be so-called primary pneuma-

toxic cystoides, as differentiated from the more frequent secondary form which accompanies gastrointestinal diseases (most frequently pyloric stenosis and less frequently intestinal stenosis).

On the basis of the pathologic anatomical findings (free evadate edema of the intestinal wall, inflammatory swelling of the mesentery and enlargement of the lymph nodes) the author commits himself in favor of the inflammatory theory in which gas-forming bacteria play an etiological rôle.

The microscopic findings in both cases showed gas-cyst formation chiefly in the subserosa, where as in the literature the gas vesicles are found to be mainly in the submucosa. The latter condition is symptomatic, while the former produces mild intestinal disturbances. (SOMMER) L. M. ZUCKERMAN, M.D.

Sweet, R. H.: Volvulus of the Cecum. Acute and Chronic, with Reports of Eight Cases. *Yew England J Med* 935, 213, 257.

At the Massachusetts General Hospital there are records of only six cases of volvulus of the cecum. Sweet reviews these cases and reports two cases of his own in detail.

In the first of Sweet's cases operation was performed two days after the onset of symptoms of acute intestinal obstruction. The cecum was not attached to the posterior abdominal wall and was completely rotated. After reduction of the volvulus the cecum emptied into the ascending colon. Cecostomy was followed by uneventful recovery.

The second case was that of a patient with an intermittent volvulus of the cecum. The cecum was freely movable and unattached to the posterior abdominal wall. It was found to be rotated one-half turn in a clockwise direction. The terminal ileum was fixed by adhesions to the fossa normally occupied by the cecum. Correction of the volvulus and fixation of the cecum into its normal position led to uneventful recovery.

Sweet found no case reported in the literature in which a correct diagnosis was made before operation. The one possibly suggestive sign is localized distention on the right side. In the chronic recurring type the history may suggest the condition and X-ray examination may be of aid in the diagnosis.

In the acute type immediate operation is indicated to correct the volvulus, relieve the obstruction, and if possible prevent recurrence. This is best accomplished by detorsion of the cecum followed by cecostomy. In the chronic type the aim of treatment is correction of the deformity and the prevention of recurrence. The results of surgery are good except when resection or excision is performed in acute cases. (EARL GARLAND, M.D.)

Marcel, P.: Histological Changes in the Mesio-Appendix in Chronic Appendicitis. (*Alterazioni istologiche del mesenterio nell'appendicite cronica*). *Arch Ital Sci Ser* 215, 20, 3.

Marcel discusses the different concepts of chronic appendicitis and classifies the types of the condition

as follows: (1) a recently healed attack, (2) an old acute attack, (3) recurrent attacks, (4) a type chronic at the outset but with acute exacerbations and (5) a type chronic throughout. He states that the great frequency of absolutely latent lesions justifies the assumption of an initially chronic type, and that the complex clinical picture makes every classification somewhat artificial.

As he knows of no researches bearing expressly on the meso-appendix, he made comparative studies of the gross and microscopic lesions in the meso-appendix and appendix in 100 cases grouped according to his classification. The findings in each group are summarized and are shown by photomicrographs. They demonstrate that, in general, inflammation of the appendix constantly determines lesions of the meso-appendix which interfere with nutrition and innervation, thus keeping the appendix in a state of abeyance and liability and favoring recurrence and the formation of distant lesions. The changes in the meso-appendix are most marked near its insertion. They consist of small-cell infiltration accompanied by numerous phagocytes "outbursts" of fibrinoids, the evolution of granulation into fibrous tissue by periplasia and often complete occlusion of the blood vessels and lymphatics, thrombosis, an increase in the elastic fibers, and the appearance of bundles of smooth muscle fibers. There is an analogy between the lesions of the meso-appendix and those of the subserosa particularly during repair. The cruxate persists into an advanced phase of repair. The lesions in the meso-appendix, the macroscopic appearance of the appendix, and the clinical manifestations do not always coincide. In the absence of symptoms, the appendix, and especially its mesentery, may show a diffuse infiltration, while in cases considered acute from the onset the meso-appendix may present fibrosis and vascular thickening. The sequence of events can be determined only by histological examination.

From the findings in 2 of his cases Marcel concludes that, through sensitization, a pre-tuberculous or toxic para-tuberculous condition may play an important part in the etiology of an initially chronic (non-specific) appendicitis as well as of other lesions which are being brought into relation to chronic appendicitis, viz. gastroduodenal ulcer, cholecystitis, and pericarditis.

The practical deduction from this study is that in appendicitis as much as possible of the meso-appendix should be removed and its cut surface given the same care as the stump of the appendix. (M. E. MORSE, M.D.)

David, V. C.: Radium Burns of the Rectum. *Ann Surg* 935, 4, 3.

The author discusses burns of the rectum caused by radium used in the treatment of cancer of the rectum or by hypertrophy of the prostatic gland.

The response of the mucosa of the rectum to radium is described briefly. Of eight cases of radium burns of the rectum, the irradiation had been given

for carcinoma in six. In three of the latter there was definite evidence of carcinoma in the depths of the ulcer under the necrotic exudate, and in two the base of the ulcer showed degenerated cells which were very suggestive of carcinoma.

The author therefore concludes that even when cancer of the rectum is treated with radium to the point of producing a burn, cure of the carcinoma does not necessarily follow.

G. DANIEL DELPRAT, M.D.

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

McWhirter, R. Cholecystography Its Present Clinical Value. *Brit J Surg*, 1935, 23, 155.

A standard method for the roentgenological reporting of cholecystograms is presented in this article.

The technique of administering the dye which is employed at the Mayo Clinic is outlined. It appears that the oral technique, if carefully carried out as suggested, yields results just as accurate as the best results obtained by the intravenous method. The dye must be given in sufficient quantity and in a readily absorbable form, and not on an empty stomach but with fruit juices, preferably grape-juice. No fats should be taken before or with its administration.

The cholecystographic data at the Mayo Clinic for 1932, consisting of 732 cholecystograms all checked by operation, are analyzed and the accuracy obtained in the various groups is shown. The terms "poorly functioning" and "non-functioning" are defined in terms of pathology.

The roentgenological basis of the diagnosis of tumors, both simple and malignant, and the differential diagnosis are discussed.

Peptic ulcer of the stomach and duodenum apparently does not interfere with the filling of the gall bladder.

The importance of realizing that a good cholecystogram does not rule out even extensive and serious disease of the liver has been demonstrated.

Delayed emptying of the gall bladder should not be regarded as evidence of disease.

The deposition of calcium in the gall bladder indicates that at the time it occurred the cystic duct was blocked. It does not necessarily indicate that the cystic duct is blocked at the time of the examination as the patency of its lumen may have been restored. Calcified gall stones are a more definite indication for operation than gall stones which are not calcified.

The evidence indicates that gall stones are accompanied by carcinoma of the gall bladder in less than 1 per cent of cases. HOWARD A. MCKENRICH, M.D.

Gonzales Cortes, E., Yazigi, R., and Spencer, A. Diseases of the Gall Bladder (Cholelithiasis). *Rev Med de Chile* 1935, 63, 101.

This discussion on gall-bladder conditions was presented before an annual meeting of the Medical

Society of Chile. It is 108 pages in length, begins with physiology and ends with surgery.

Duodenal tube drainage of the biliary system helps to classify the pathological gradations of cholecystitis so that the truly surgical varieties may be separated from the milder degrees of inflammation. It is a method by which patients who are poor surgical risks may be treated or rendered better risks for operation. It is of service also in the treatment of many medical diseases and functional disorders associated with hepatic insufficiency and toxemia.

The intravenous method of cholecystography is preferred because it is more accurate and does not cause digestive disturbances. The most reliable finding is the complete absence of a shadow. The gall bladder is invariably pathological when no shadow is observed after the intravenous injection of the dye and the patient has been given the full dose and has followed dietary instructions. Decreased density of the shadow may also be indicative of a pathological gall bladder, but in some cases may be due to errors and variations in the X-ray technique. Persistent deformity of the shadow indicates adhesions. Intrinsic shadows of gall stones and tumor growths can be seen when the shadow is sufficiently dense. Great care must be taken to exclude bubbles of gas in the intestines. Variations in the emptying time after the ingestion of a fatty meal are not of much diagnostic significance. In most instances cholecystography and duodenal drainage run parallel as tests of gall-bladder function.

Chemical study of the blood is of aid not only in diagnosis but also in determining the risk of operation. Alarming bleeding may occur in the absence of jaundice.

The surgical treatment indicated depends upon the amount of infection present, the disturbance of metabolism, and obstruction. Surgical intervention yields better results in cases with stones than in those without stones.

Cholecystectomy is the operation of choice unless it is contra-indicated by unusual mechanical difficulties and an unusual amount of infection. Drainage alone should be performed when cholecystectomy is unwise. Cholecystogastrostomy is indicated in cases of common duct obstruction in which the cystic duct is patent. Artificial anastomoses may close up if the natural route regains its permeability.

WILLIAM R. MEEFER, M.D.

Coggi, G. Squamous-Cell Cancer of the Gall Bladder, with Special Reference to Its Histogenesis (Sopra il cancro a cellule piatte della cistifellea con particolare riguardo alla sua istogenesi). *Arch Ital di chir* 1935, 40, 253.

Coggi gives a pathological report on 2 squamous cell cancers which were found among 15 primary cancers of the gall bladder observed in Donati's clinic, Milan, in the period from 1927 to 1934. Only about 40 cases are to be found in the literature.

From a review of the theories as to the origin of epitheliomas from cylindrical-cell mucosa, Coggi

concludes that the most probable is Krompecher's theory of origin from the basal cells. These undifferentiated cells, which occur in every type of epithelial covering, are multipotent and may develop into either cylindrical or stratified epithelium. Squamous-cell carcinoma of the gall bladder therefore represents a primary phase of neoplastic undifferentiated proliferation of these cells (which normally would have given rise to cylindrical epithelium) followed by a phase of heteroplastic differentiation into squamous cells. The pathogenesis of this metaplasia is still unknown. Chronic irritation appears insufficient to account for it. The fact that, except in the 2 cases reported, none of the 310 gall bladders removed at Donati's clinic during the period reviewed showed flat epithelium supports the hypothesis that epithelial metaplasia occurs only in a tumor already in process of evolution.

The article includes photomicrographs and is followed by an extensive bibliography.

M. E. Moxer, M. D.

Whitaker, L. R.: Electrosurgical Cholecystectomy. I. Experimental Observations. II. Clinical Application. *N. England J. Med.* 1935, 3: 906, 674.

The author studied the effect of electrosurgical cholecystectomy on dogs.

On the basis of Pribram's Muloklase (cautery destruction of mucous membrane) the attempt was made to destroy the gall bladder simply by cauterizing the cystic duct. This proved to be unsatisfactory on account of bile leakage and sloughing of the gall bladder. Cauterization of the whole mucosa by the Pribram method in the non-sclerotic gall bladder was likewise unsatisfactory. In the sclerotic gall bladder it worked fairly well, but the author believes that any treatment of the gall bladder with the actual cautery is too dangerous and difficult for general use.

The tumor dissolving or "cutting" current was found too difficult to apply for obliteration of the gall bladder. In the non-sclerotic gall bladder its use for Muloklase was unsatisfactory being

associated with hemorrhage. In the sclerotic gall bladder the results were better. However it is not recommended.

The uniterminal coagulating current (desiccation) was too highly destructive of tissue and its effect was too superficial to be safe. In the reported experiments its use was followed by secondary hemorrhage.

The preferred current is the biterminal coagulating current. Contact should be made with the active electrode and the tissue treated to a considerable depth.

In the method of choice finally developed the gall bladder is aspirated and then split to the cystic duct with the cutting current. The duct is dissected free and tied. The leaves of the vesicle are then trimmed away about 1 cm. from the attachment to the liver and the bleeding vessels are clamped and tied. Then the section of gall bladder left attached to the liver is thoroughly treated with the coagulating current by contact with the needle and fulguration, the points where the vessels are tied being avoided. The Thorek method of employing contact coagulation to a considerable depth seems preferable to fulguration.

The gall bladder best adapted to this method is the markedly inflamed or sclerotic organ.

The authors report the results in sixteen cases in which electrosurgical cholecystectomy was done by the method described. In these cases there were three deaths, but none of the deaths could be definitely attributed to the use of electrosurgery. In thirteen cases the operation was followed by uneventful recovery and the final results were satisfactory. Some of the surviving patients have been followed for two or three years.

The author states that when considerable coagulated tissue has been left in place, when there has been a pronounced inflammatory reaction, and when it has been impossible to tie the cystic duct securely drainage is advisable. The drain used has been the soft rubber tube inserted into, or attached to, the stump of the cystic duct or the rubber-dam cigarette drain (Pearson) with no exposure of gauze.

Lois Szekins, M. D.

GYNECOLOGY

UTERUS

Migliavacca, A. The Conversion of the Uterine Epithelium into a Syncytial Structure Under Hormonal Influences—Contribution to the Physiopathology of the Female Sex Hormone (Ueber die Umwandlung des Uterusepithels in syncytiale Struktur unter hormonalen Einflüssen Beitrag zur Physiopathologie der weiblichen Geschlechtshormone) *Arch f Gynack*, 1935, 159 172

The author presents some of the results obtained by his experimental work, which he intends to follow with further reports. The experimental animals (rats) were castrated and then treated with folliculin for a period of four weeks, nine white, eight infantile animals were compared with three mature and three immature but castrated animals. The treatment with folliculin consisted of the daily injection of Progryron B in oil (Schering) over a period of three weeks.

Whereas macroscopically the difference between the uterine cornua of injected and uninjected animals is not great, nevertheless, if the cyanotic staining of the first is disregarded, it is found microscopically that while the musculature in this group is not thickened, the mucous membrane is considerably thickened and has undergone a polypoid hypertrophy with formation of fringes in parts. The formation of vacuolated syncytia is of essential significance, next in importance is infiltration with eosinophilic granulocytes. Hyperemia is unimportant. In parts the border lying between the epithelial syncytia and the stroma becomes blurred, some of the syncytia actually wander into the border in conjunction with an excessive amount of nuclear division. Also, small parts of the syncytial formations are cast off at the free surface. A more exact description is applied to the vacuolization of the syncytia, they simulate glandular formations and the same changes occur in the uterine glands as in the surface epithelium. These results are compared with related or at least similar experimental results obtained from the literature, but up till now multiple layer formations and syncytial formations had not been known to occur. Therefore, there is a similarity between the findings of the author and the mucosa of the pregnant uterus, but in spite of this the author does not attribute these formations to the same or similar etiological conditions.

A very inclusive review of our knowledge concerning the influence of the hypophysis and its interacting action with the ovaries follows, as well as a report concerning the various viewpoints on the origin of the decidua and the syncytium during pregnancy. The attention of the reader is attracted by the number of reputable Italian research workers who attribute the development of the trophoblast,

of the syncytium, and also of a portion of the decidua to the uterine epithelium, a viewpoint which is usually regarded as passé. The author is sufficiently careful to compare his findings with similar findings and contents himself with the conclusion from his experiments that a hormonal combined action (Prolan A and folliculin) takes place specifically upon the uterus. The similarity between the vacuolization in the artificially produced syncytia with that found in hydatidiform mole and chorion-epithelioma is dwelt upon at length with special reference to the possible similarity of their function. For the specific purpose of vacuolization a larger superficial surface for contact with a presumed hormonal nutritive fluid is provided. Similarly, also the eosinophilic granulocytes, which in part occur also in the vacuolated syncytia, could be hormone carriers. To these assimilating activities the activities of secretion are added, through which the vacuolization increases up to the point of liquefaction of the syncytial plasma, and just as in the case of hydatidiform mole, the process in the findings of the author (pseudo-gland formation) finally goes on to hydropic degeneration.

(R. MEYER) HARRY A. SALZMANN, M.D.

Tompkins, P. The Results of Treatment of Benign Lesions of the Cervix Uteri *Am J Obst & Gynec*, 1935, 30 369

Six hundred and eleven patients treated for benign cervical lesions at the Hospital of the University of Pennsylvania between 1914 and 1934 were traced. The methods of treatment were cauterization, trachelorrhaphy, the Sturmdorf operation, and amputation. Each method gave relief of leucorrhea in approximately 85 per cent of the cases. Trachelorrhaphy was followed by a lower incidence of complete cure of leucorrhea and effected a cure more slowly than the other methods.

Approximately 66 per cent of the married women of child-bearing age who had never been pregnant conceived after cervical repair.

Of the 611 patients traced, 2 subsequently developed a cervical carcinoma. The most important factor in the relief of leucorrhea due to cervicitis is the selection of a type of treatment suitable to the individual case. Approximately 85 per cent of patients will be relieved of leucorrhea if the choice of treatment is based upon the indications outlined.

In general, trachelorrhaphy cannot be recommended as a satisfactory procedure when the principal object of treatment is the complete cure of leucorrhea.

The possibility of producing cervical stenosis which will interfere with conception should not

Influence the choice of treatment for benign lesions of the cervix
EDWARD LYMAN CORDELL, M.D.

Tompkins, P.: Cancer of the Cervix Uteri in Nulliparous Women. A Report of Fifty Three Cases. *Am. J. Cancer* 1935, 24: 307

Of 6,418 cancers of the cervix reported in the period from 1915 to 1934 by 14 gynecologists, 9.6 per cent, and of 505 cervical cancers treated at the University of Pennsylvania, 10.5 per cent occurred in nulliparous women.

All of the patients whose cases are reviewed by the author were white women. None was Jewish. There was no material difference in the extent of the growth at first examination in the nulliparous and parous groups. The incidence of five-year cure in each group was 12 per cent. Consequently Tompkins concludes that cancer of the cervix in nulliparous women differs in no respect from cancer of the cervix in parous women. GROSSMAN H. GARDNER, M.D.

Bédiers, C.: Cancer Developing in the Stump of the Cervix After Subtotal Hysterectomy (A propos d'un cancer développé sur le résidu du col après hystérectomie subtotale). *Bull. Soc. Obst. et Gyn. de Paris* 1935, 24: 27

In cancer of the cervical stump following subtotal hysterectomy it is necessary to differentiate between primary cancer of the cervix and recurrence of a cancer incompletely removed. The cancer can be considered primary in the stump only when the supra-vaginal hysterectomy was performed for a lesion known to have been benign. Primary cancer of the stump is almost always of the squamous-cell type and appears a considerable time (several years) after the operation. Recurrence of a cancer incompletely removed appears soon after the operation and is almost always of the cylindrical-cell type. The three most common diagnostic errors resulting in incomplete removal of a uterine cancer are the diagnosis of a coexistent fibroma and carcinoma of the fundus as a fibroma, the diagnosis of a primary adenocarcinoma of the body as a fibroma, and the diagnosis of an endocervical cancer as metritis. All of these conditions should be recognized by careful study of the specimen removed at operation. Bédiers discusses the differential diagnosis. MAX M. ZERNICKE, M.D.

ADRENAL AND PERIUTERINE CONDITIONS

Allen, W. M. and Reynolds, S. R. M.: The Physiology of the Corpus Luteum. *Am. J. Obst. & Gynec.* 1935, 20: 509

The injection of varying doses of either form of crystalline progesterin or of a partially purified progesterin fraction into castrated rabbits in which the estrous type of uterine motility has been induced by the injection of theelin causes cessation of all rhythmic contractions as recorded without anesthesia by an intra uterine balloon. Graded injections (0.3 and 0.6 rabbit unit) of impure progesterin cause inhibition of motility in four hours (± 1 hour) two hours (± 45

minutes) and fifty-five minutes (± 15 minutes) respectively. Crystalline progesterin B, in doses of 0.2 and 0.4 rabbit unit, and crystalline progesterin C, in doses of 0.3 and 0.6 rabbit unit bring about cessation of motility in approximately the same time as similar doses of the impure preparation.

It is clear that these results obtained with the use of crystalline progesterin bear conclusively on the problem of the possible diversity of action of various progesterin fractions. They show for example, that crystalline progesterin in either the B or C form is inhibits estrin induced rhythmic contractions of the uterus in the castrated rabbit. Moreover they demonstrate that not only are both forms of progesterin endowed with the inhibitory function, but when progesterin-containing extracts are increasingly purified, there occurs simultaneously a proportionate increase in the concentration of the hormone responsible for the inhibition of motility. Thus we are forced to the conclusion that the two hormonal effects, endometrial proliferation (already shown to be produced by either form of crystalline progesterin, Wintermeyer and Allen, 1934) and inhibition of estrous motility are attributable to the single hormone, progesterin. On the other hand, the results do not answer the question as to whether inhibition of pituitary responses of the uterus *in vivo* is due to progesterin or a second hormone. The solution of that problem will require experiments with the use of crystalline progesterin.

When this work was undertaken, the thought was entertained that the uterine fistula technique might lend itself to standardization of progesterin preparations. However the variation of inhibition times for the respective dosages with no sharp delineation between the shortest inhibition time of one group and the longest inhibition of the next group renders this method inapplicable. With unknown dosages this would present a serious difficulty. Still another objection to the fistula method lies in the fact that substances other than progesterin inhibit estrous motility (prolan and certain extracts of the anterior lobe of the pituitary gland, Reynolds, 1933). Therefore, unless it is known that pure progesterin is being used, inhibition alone cannot be relied upon as a test for progesterin. Accordingly these and other considerations make it obvious that the preferred biological method for standardization of progesterin continues to be the Corner Allen method of histological assay.

The experiments reported by the authors in this article and previously in which crude progesterin-containing extracts (Reynolds and Allen, 1933) were used, provide the scientific basis for the suggested use of progesterin in certain forms of dysmenorrhea. The possibility of its use in this condition is very attractive. Strong uterine contractions, which are known to occur in laboratory animals only under the influence of estrin, presumably account for the crampy pain of severe dysmenorrhea in some instances. If in the human female, these contractions are due to estrin as in rabbits, progesterin would be

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expected to alleviate the symptoms. The dose necessary should not be great in fact it should be less than the amount necessary to produce a premenstrual endometrium since the injection of such an amount would probably delay the onset of the menstrual period rather than alleviate the cramps. That such a possibility is a real one has been shown by experiments on rabbits in which progestin has been shown to delay an experimentally induced menstrual period (Smith and Eagle, 1932) as well as a normal period (Coffey and Eagle, 1932) as well as a period of regression (Coffey and Eagle, 1932). Some bias in favor of the progestin dosage is found in the authors' experiments with rabbits. A single subcutaneous injection of a rabbit unit will bring about complete regression in about five and one half hours whereas a similar dose will give, for five days to bring about full progestational growth of the endometrium (Peyrold and Allen 1935). The exact amount necessary for the human female cannot, of course, be deduced from these experiments, but as Kaufman (1935) has produced a premenstrual endometrium with from 25 to 50 rabbit units it would probably not be great. The fact that crystalline progestin (C.H.G.) causes this inhibition of menses in the same way as crude extracts has considerable clinical bearing also because the hormone, all probably be supplied in the synthetic form rather than in the naturally occurring form.

The use of progestin in other conditions such as habitual and threatened abortion, premature labor and hyperplasia of the endometrium seems less certain of success but nevertheless worthy of trial (Krohn, Falls, and Luckner, 1935). Abortion is often secondary to an abnormal embryo but there are probably other cases in which it is due to an exceptionally irritable uterine muscle. In the latter and in premature labor not associated with mechanical defects such as rupture of the membranes progestin might be beneficial. Its suggested use in hyperplasia is based on the well known observation that in most cases this condition is associated with abundance of corpora lutea.

Purification and concentration of impure progestin containing extracts of corpora lutea with ultimate crystallization of progestin are accompanied by a simultaneous and proportionate increase in the two hormonal effects, endometrial proliferation and inhibition of uterine motility in unanesthetized rabbits. It is evident, therefore, that these are dual properties of the single hormone progestin.

The bearing of this work on certain clinical problems is discussed.

HOWARD LYMA CORNELL M.D.

EXTERNAL GENITALIA

Pozzi, T. Tuberculosis of the External Genitalia (Tuberculosis dei genitali esterni) *Ginecologia*, 1935, 1: 891

Pozzi reports a case of ulcerative tuberculosis of the cervix, vulva, perineum, and anus of a woman twenty-seven years old who was suffering from

advanced pulmonary tuberculosis. He believes that it is secondary to involvement of the upper genital tract which in turn arose from hematogenous infection following pregnancy. He gives a general discussion of the pathology, modes of infection, diagnosis, prognosis, and treatment of tuberculosis of the lower genital tract.

The article is accompanied by illustrations and references.

M. T. MORGAN, M.D.

MISCELLANEOUS

Farlam, M. S. S. Diverticula of the Female Urethra (*Int. J. Ven. & Derm. Symp.*, 1935, 4: 10)

Diverticula of the urethra are not common in either sex. Thus far fewer than 100 such diverticula in men and not more than 50 in women have been reported.

The author reports two cases in women. In both the diagnosis was confirmed by urethroscopy and cystenography. In one, the diverticulum contained a calculus. In neither case was operation performed.

The diverticula have been described to congenital anomalies, trauma, the sequelae of a perineurthral abscess, the rupture of perineurthral cysts, and glaucoma dilatations. However, none of these theories seems to be entirely satisfactory in accounting for their development in women. The author suggests that in many cases a localized congenital structural weakness of the urethra may be responsible.

The symptoms if any, are in no way characteristic of the lesion.

The diagnosis is suggested by the findings of palpation, urethroscopy, and diverticulography.

Treatment, if indicated, should consist of resection of the diverticulum.

GILBERT H. GARDNER, M.D.

Furquhart. The Medical Treatment of Genital Hemorrhage Due to Causes Other Than Pregnancy and Tumors. Traitement médical des hémorragies génitales en dehors de la grossesse et des tumeurs. *Le français de gynécologie et d'obst.*, 1935, 30: 473

In this article of fifty pages the author mentions or discusses about sixty remedies for genital hemorrhage, all of which he finds efficacious in some degree under certain conditions. He discusses genital hemorrhage of adolescence and of the menopause separately. He emphasizes that, so far as possible, the treatment should be etiologic.

Of chief interest is the treatment of non organic hemorrhages of young girls with hormone preparations. In spite of the great progress made in recent years the indications for such treatment remain rather vague. Folliculin, progestin, uterine extract, mammary extract, hepatic extract, parathyroid extract, thymus extract, pineal extract, and insulin have all given good results. Only in the treatment of endometrial hyperplasia and uterine hypoplasia do the indications seem to be fairly precise. The

presence of hyperfolliculism can be determined by biological analysis of the urine. More than 200 mouse units of folliculin per liter is abnormal. Excessive secretion of folliculin can be corrected by (1) removal of the persistent follicle or (2) the administration of progestin or Prolan B. A convenient source of Prolan B is urine of a woman pregnant four months or less, administered by rectal drip. In genital hypoplasia injections of folliculin may have a favorable effect.

Functional hemorrhages in women near the menopause present a problem similar to the hemorrhages of girls. They may be associated with hyperfolliculism, hypofolliculism, or hyperprolactinism, all of which are reflected in the hormone content of the urine. The line of treatment can be determined by biological tests of the urine.

All of the classical treatments are discussed in detail. The most important of these is rest in bed.
ALBERT F. DE GROOT, M.D.

Dubrouilh, E. Electrotherapy and Actinotherapy (Electrothérapie et actinothérapie). *Rev. franç. de gynéc. et obstet.* 1955, 50, 515.

The author discusses the use of electrotherapy and actinotherapy for genital hemorrhages of puberty and the menopause and those due to metritis or

adnexal disease. He reviews the technique and results of diathermy, electrolysis, and irradiation with ultraviolet and infrared light.

Diathermy applied to the thyroid of normal women reduces the menstrual flow (Travenço, 1955). In essential metrorrhagia it gives lasting favorable results. The treatment should be less than that causing histological changes in the thyroid gland. Excellent results from daily diathermic treatment of the hypophysis (in reality the base of the brain) have been reported. However this treatment is applicable only when the uterus is large (Fertier).

Diathermocoagulation of the endometrium has been advocated by Ten Berge. The intensity of the treatment should be below that producing an echin. The method is of special value in hemorrhagic endocervicitis.

Galvanization originated with Apostoli in 1881. Today it has been almost completely abandoned.

Irradiation with ultraviolet light is indicated chiefly when the metrorrhagia is of tuberculous origin. Good results in genital hypoplasia have been reported.

Irradiation with infrared light is of value because of its stimulating effect on the endocrine glands. Hence the best results are obtained in uterine hypoplasia.
ALBERT F. DE GROOT, M.D.

OBSTETRICS

PRFGNANCY AND ITS COMPLICATIONS

Hellman, A. M., and Simon, H. J. Full-Term Intra-Abdominal Pregnancy. *J. A. S. A.*, 1915, 7: 48

The authors first discuss the treatment of the placenta in full-term intra-abdominal pregnancies. They state that if the placenta is easily removable its complete excision is indicated, whereas if it is intimately attached to the uterus, and otherwise abnormal, a cesarean section or partial hysterectomy is the method of choice. Often the abdominal cavity is completely empty, the placenta being attached to the uterus.

With regard to the time at which operation should be performed, the authors have been best advised by the experience of others. Since each case has been decided upon individually, it is difficult to say that operation should be done at once. Others of the group believe it until the death of the fetus, and others waiting for the death of the fetus. The authors believe the positive result group with them is the best. They state that to wait for fetal death and beginning placental separation means to wait for mortality in and this unquestionably adds to the danger of sepsis and, of course, sacrifice the fetus.

It is the impression that the infant is no mal in extra-uterine pregnancy much more often than is generally believed.

From the literature the authors have collected 311 cases of intra-abdominal pregnancy with the delivery of a living infant. To the fetus lived eight days or longer. Of the 316 mothers, 212 lived, 101 died, and the fate of 3 is unknown. The principal causes of death of the mother are peritonitis, hemorrhage with shock and secondary factors including diseases of the kidneys and heart and complications developing later such as pneumonia.

KOLA TO S. (Gross, M.D.)

Modrzejewski, A. Choriangioma (chorangioma). *Ginek. Polska*, 1914, 13: 251

The author reports a case of choriangioma, a pedicled tumor with the appearance of an adult human kidney, which occurred in a multipara forty-eight years old. The neoplasm had a smooth surface, measured 6 by 5 by 4 cm., and weighed 110 gm. With the exception of the part in contact with the placenta it was covered with amnion. Removal of the amnion revealed a smooth gray membrane which could be removed from the tumor only with great difficulty. The surface as well as the cut section presented brownish red and yellowish white areas which were firmer than the rest of the tumor. In

the cut section, the brownish red area were covered with small gray spots and resembled liver tissue, while the yellowish white area were dotted with orange spots and resembled scar tissue. The neoplasm was connected with the placenta by a pedicle which contained an artery and a vein. The placenta had a surface of 270 sq. cm. although the pregnancy lasted only eight months' duration. It measured 6 by 15 cm., varied in thickness from 1.5 to 3.5 cm., and weighed 295 gm. Neither the placenta nor the amnion showed pathological changes. Although the surface area of the tumor was 140 sq. cm. and that of the placenta 270 sq. cm., the covering surface being therefore 110 sq. cm., the amount of amniotic fluid was normal.

The microscopic examination of the tumor disclosed connective tissue forming a capsule and septa between the blood vessels. Neither syncytial elements nor Langhans cells were observed. The author is of the opinion that the internal epithelium of the tumor formed the adventitia of the vessel which nourished the tumor and had their origin in the allantois, i.e., the outer layer or so-called perithecium. From the findings of the microscopic examination he concluded that the tumor was a neoplastic process which was limited in its development by the surrounding structures and yet had a tendency toward eccentric growth. It had no organic connection with the chorion, as it was devoid of chorionic elements. It consisted of endothelial cells which formed capillaries and of connective tissue elements which formed its stroma.

The tumor caused no complications in the mother and no abnormalities in the child. The author discusses the etiological aspect of choriangiomas and the complications to which they may lead.

Tabb, C. and Gilbert-Dreyfus. Diabetes and Pregnancy (Diabetes et grossesse). *Gynec. et Obst.*, 1915, 12: 7

The authors state that pregnancy may cause some disturbance of the carbohydrate metabolism even in women who are otherwise entirely normal. Glycosuria during pregnancy may be due to (1) lowering of the renal threshold, (2) a paradiabetic state, (3) lowering of the renal threshold with an associated paradiabetic state, or (4) a true diabetes developing during the pregnancy.

In the paradiabetic state the glycosuria is relatively slight and intermittent. The glucose-tolerance test shows a blood sugar curve slightly above normal or with a delayed fall from the high level. The authors cite a case of pregnancy glycosuria due to lowering of the renal threshold combined with the paradiabetic state. There may be various intermediate

stages between pregnancy glycosuria and true diabetes. In successive pregnancies a paradiabetic disturbance of carbohydrate metabolism may develop first into a mild, and then into a severe, diabetes.

In cases in which a true diabetes develops during pregnancy the patient is usually a multipara and the diabetes develops in the third to the sixth month of the pregnancy most frequently in the sixth month. In some cases the previous pregnancies have been absolutely normal. In others, they were accompanied by a transitory glycosuria and in a third group a previous pregnancy terminated by the death of the fetus without definite cause. As a rule the diabetes continues after delivery. If it is treated promptly it may remain relatively mild, and even if it becomes severe resulting in acidosis and coma it can be effectively treated with insulin and the patient brought to term and delivered of a healthy infant.

In women who have diabetes or glycosuria, pregnancy usually either lowers the renal threshold or aggravates the disturbance of the carbohydrate metabolism. In some cases the diabetes remains stationary but the renal threshold is lowered and acidosis develops. Sometimes a renal diabetes is complicated by acidosis without any special change in the carbohydrate metabolism.

If pregnancy occurs in a woman who has true diabetes, it may have no special effect upon the diabetes, especially if the diabetes is mild. The authors report 3 cases of this type. In the majority of cases, however, the diabetes is aggravated by the pregnancy. Acidosis may develop in cases previously showing no tendency to it. In cases in which it is already present it becomes more severe and coma may develop at the end of the pregnancy or even after delivery.

With modern methods of treatment the prognosis for diabetic women who become pregnant has been greatly improved. In the authors' ten cases in which the diabetes was definitely aggravated by the pregnancy there was only one maternal death. The prognosis is better in cases in which pregnancy occurs in a woman who is known to be diabetic and is under proper treatment and control than when diabetes develops during pregnancy. Under the latter circumstances the conditions may not be discovered until acidosis or coma develops. In the case of a diabetic woman who becomes pregnant the treatment is modified according to the indications in the particular case and the development of severe complications is prevented to a great extent. In the treatment of diabetes in a pregnant woman there must be some increase in the diet and in the amount of carbohydrate allowed and sufficient insulin must be used to balance the increase; the treatment must be individualized according to the case. As a rule it is not necessary to interrupt the pregnancy. The child is frequently large, but the authors have found that it can usually be delivered normally.

The prognosis for the child is less favorable than that for the mother but the hydramnios may yield to insulin treatment. If the child of a diabetic

mother survives, it will usually not show any disturbance of carbohydrate metabolism, but it is doubtless it will have a hereditary tendency toward the development of diabetes in later life.

ALICE M. MIRON

Gasperri, F. Clinical and Bacteriological Findings in the Phlogocystitis of Pregnancy (Ruber, *Chronic bacteriologiae et cholepneitis in gravidis*) *Ghiaccio*, 1935, 1: 747

Phlogocystitis is one of the most frequent complications of pregnancy. While the streptococcus, staphylococcus, pneumococcus, gonococcus, and typhoid paratyphoid groups of bacteria alone or in combination are occasionally found to be the infecting organisms, the colon bacillus alone or associated with one or more of the former is far more frequently responsible for the condition.

Among the most widely accepted theories regarding the condition are those ascribing it respectively to ascending infection, lymph-stream infection from the intestinal tract, and blood stream infection from the intestinal tract occurring either directly or by way of the liver and kidneys.

The author reports his clinical and bacteriological studies in 22 cases which were found among 5,400 cases of pregnancy. Eight of the women were multiparae. In all, the phlogocystitis developed in the second trimester of the pregnancy. It was most frequent in the eighth and ninth months. In 11 cases the pregnancy went to term, and in 1 case labor occurred prematurely. In no case was interruption of the pregnancy necessary. The point of greatest tenderness was repeatedly demonstrated at the junction of the outer border of the iliohypogastric muscle with the lower margin of the last rib (Cova's point).

In 11 cases biochemical and cultural studies showed the infecting organism to be a non-hemolytic colon bacillus with the characteristics of the bacillus coli recovered from human feces. In 1 case a definitely hemolytic colon bacillus was found.

The treatment consisted of the intravenous administration of urotropin and the use of an antiseptic vaccine supplemented, in several cases, by arterial catheterization. All of the patients responded well. A mild postpartum recurrence was recorded in only 3 cases. OLIVIERO C. FIVOLA, M.D.

LABOR AND ITS COMPLICATIONS

Wrigley, A. J. The Forceps Operation. *Lancet* 1935, 79: 70

The disadvantages of the so called extraction forceps which are used to deliver babies from the mid pelvic plane or above are removed. The long curved forceps employed today were conceived, designed, and constructed to deal with the case of the woman whose pregnancy had had no supervening and in whom labor is obstructed, the fetal head having failed to descend into the pelvis. When delay in labor occurs and the fetal head is anywhere bet

on the pelvic floor, there is no call for the use of an instrument long enough to reach and grasp the head. Such delay is an indication rather for the induction of anesthesia and a thorough examination to ascertain the cause. Too often such an examination is not made, forceps are applied, and force is exerted. This usually results in the "failed forceps" case. The use of the long curved forceps is associated with potential dangers to mother and child.

The continued use of the long curved forceps is explained by the fact that the application of such forceps has the weight of tradition behind it, it is accompanied by injury to the mother and child in only a small percentage of cases, and in the teaching schools it is to some extent regulated and restricted.

What is needed is an instrument for the delivery of a fetal head that is low in the pelvis. This instrument should be designed for the purpose and should be such that it cannot be applied to the head that is high in the pelvis or through an undilated os. The author has devised such an instrument. He has modified Simpson's short straight forceps by adding the usual pelvic curve.

Of the fifty-eight consecutive deliveries of primiparous women which are reviewed by the author, twenty-three occurred without aid. In thirty-two, the head was lifted through the pelvic floor with the forceps. In three, manual rotation of the fetal head in the occiput-posterior position was necessary.

Wrigley believes that the use of the really low forceps is virtually without risk to the mother or child, and that it would be better to advocate a more frequent use of the short light forceps at the end of labor than to teach the strictly limited use of another instrument which is far too clumsy and heavy.

ALBERT HOLMAN, M.D.

Clave, A. M. Pernocton-Hyoscine Twilight Sleep. A Review of Thirty Cases. *J. Obst. & Gynec. Brit. Emp.*, 1935, 42, 636.

The author reports thirty cases in which twilight sleep was induced with pernocton (a 10 per cent solution of the sodium salt of the secondary butyl-beta-bromallyl barbituric acid) and hyoscine hydrobromide according to the method of Gauss.

Pernocton may be given as soon as the pains are occurring every five minutes and lasting twenty seconds. It is injected intravenously, the amount given depending on the reaction obtained. Immediately after its administration a small dose of hyoscine is administered hypodermically. The frequency and size of further doses of hyoscine depend on the results of tests of the patient's memory.

Under this treatment the patient sleeps between pains but may cry out during the pains. The general bodily reactions are not much changed. As a rule there is some restlessness which requires protection from injury and close nursing and obstetrical care. The patient usually has a long sleep after delivery.

Pernocton-hyoscine twilight sleep is contraindicated by sluggishness of the uterus. In cases of disproportion it should not be induced until the

greatest diameter of the head has passed the brim. Albuminuria is not a contra-indication.

It does not either shorten or prolong labor. Routine measures should not be omitted. In the thirty cases reported the results were very satisfactory. In five cases forceps were used. All of the babies were born alive and did well. In twenty-four cases amnesia was perfect or very good. The shortest time between the administration of the pernocton and delivery was fourteen minutes.

In one case the pains stopped for fifty minutes after the injection of the pernocton. Six patients vomited soon after the injection and six were particularly restless.

T. FLOYD BELL, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Triblât, P., Michon, L., and Dargent, M. Suppurative Puerperal Oophoritis (Les oovites suppurées puerpérales). *Gynec. et obst.*, 1934, 32, 116.

The authors report thirteen cases of suppurative oophoritis and discuss the pathology, bacteriology, and typical clinical course of the condition.

The course of puerperal infection is characterized relatively frequently by the occurrence in one ovary of a massive central pus-producing process due usually to a very attenuated streptococcus. The authors believe that the infection of the ovary occurs by way of the blood stream rather than by lymphatic extension or by extension along the uterine and tubal mucous membrane. Against the theory of lymphatic extension is the fact that infections spread by way of the lymphatics seldom suppurate unless the nodes break down. Against the theory of extension along the uterine and tubal mucosa is the well-known fact that suppurative puerperal inflammation may develop in an ovary a long time after salpingectomy on the same side.

The typical pathological change in suppurative puerperal oophoritis is a massive central infection with a shell of ovary surrounding a large mass which usually lies in the pouch of Douglas and is very adherent to the sigmoid on the left or to the cecum on the right. The lesion is unilateral. The uterus and tubes are intact. In a number of cases phlebitis of the veins of the broad ligament is manifested by nodules in that ligament which can be felt on vaginal examination. The bacterium responsible is almost always the streptococcus. In some cases the gonococcus may be the cause, but the authors have never cultured it from the pus. If the bacillus coli is found its presence is due to involvement of the sigmoid. Frequently the pus is sterile.

The condition has no truly pathognomonic signs and is often found when not suspected. The most typical case is that of a woman recently delivered who is suffering from chills and presents alarming signs of puerperal infection. Phlebitis perhaps appears. The process then quiets down and the temperature becomes almost normal. The presence of the suppurative oophoritis is discovered on vaginal examination which reveals a mass. In some cases,

however a long time may elapse between the initial infection and the discovery of the abscess, and during this period only functional disturbances may be noted. Examination reveals a mass in the vault which causes displacement of structures according to its size.

The treatment is operation with removal of the abscessed ovary. Much care must be exercised in separating the mass from the sigmoid. Drainage through the posterior cul-de-sac should be established if soiling of the peritoneum occurs.

The principal complications are phlebitis and bacteremia. As a rule however the prognosis is good.

KENNETH W. TROSKOW, M.D.

Piccone, L.: Local Intraparenchymal Vaccination by Spirito's Method in Puerperal Infection (*La vaccinazione locale intraparenchymale secondo Spirito nella cura delle infezioni puerperali*). *Ginecologia*, 1935, 1: 714.

The author reports thirty-two cases of puerperal infection successfully treated by the local intraparenchymal vaccination method of Spirito.

The technique consists of repeated injections of "piogon," a vaccine containing 1 billion streptococci, 500 million staphylococci, 500 million gonococci, and 300 million coliform bacilli per $\frac{1}{2}$ c cm. The dosage employed is $\frac{1}{2}$ c cm. The suspension is introduced into the substance of the cervix for a distance of 3 or 4 cm. at intervals of three days.

The treatments cause a marked elevation of the temperature which occurs in from two to six hours after the injection and is in direct relation to the dosage. From 3 to 6 inoculations are required. The treatment should be continued until the fever subsides.

Of the thirty-two cases reviewed, the infection was generalized in ten and local in twenty-two. In ten cases it followed abortion, and in twenty-two, delivery.

The author concludes that the simplicity of technique, the favorable results, and the low cost of the vaccine make intraparenchymal vaccination of inestimable value in the treatment of both local and general puerperal infection.

GEORGE C. FROGA, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Loeb, R F, Atchley, D W, and Stahl, J The Role of Sodium in Adrenal Insufficiency *J Am Med Ass*, 1935, 104 2149

The authors discuss the activity of the adrenal cortex related to electrolyte physiology and renal function. In discussing the shock resulting from the loss of water and basic salts from the blood, they state that attention was first called to the value of intravenous injections of saline solution in shock due to cholera by O'Shaughnessy in 1831.

The syndrome of salt loss, dehydration, and the resulting shock is characterized clinically by progressive weakness, overwhelming prostration, nausea, vomiting, an increasing pulse rate, a falling blood pressure, a subnormal temperature, sinking-in of the eyes, and loss of the normal turgor of the subcutaneous tissues. When this syndrome develops rapidly there is a marked increase in the blood urea preceding the final stages of oliguria or anuria.

The similarity of this syndrome to the picture of acute adrenal insufficiency suggested that loss of salt and water might be an important factor also in the latter condition.

In cases of adrenal disease admitted to the Presbyterian Hospital, New York, it was noted that there was a marked decrease in the sodium content of the blood together with a marked dehydration. The patients were relieved by intravenous injections of salt solution without the use of glandular therapy. In adrenalectomized cats, Marine and Baumann found that the sodium content of the blood was decreased while the potassium content was increased. In dogs studied by the authors the sodium content of the blood fell rapidly after the removal of the second adrenal gland and this change was accompanied by a drop in the level of chloride and bicarbonate. Balance studies showed a marked increase in the sodium excretion of the kidneys. Sodium was lost not only from the blood but also from the interstitial fluids of the body. The authors present and discuss several possible explanations of the cause of this phenomenon following adrenalectomy.

1 The removal or destruction of the adrenal glands is associated with the liberation of a foreign acid that calls on a fixed base for its excretion. The authors state that as there is no increase in the ammonia output in the urine, it is improbable that the loss of sodium is dependent on an acidosis due to an organic acid.

2 The loss of sodium from the body is due to the loss of water through the kidneys. This hypothesis is untenable because the loss of sodium is relatively much greater than the loss of water. Moreover, with primary dehydration an increase rather than a de-

crease in the sodium content of the blood would be expected.

3 The adrenal cortex regulates sodium metabolism. This is the most logical hypothesis.

The successful treatment of Addison's disease will be accomplished only when the active principle or principles of the adrenal cortex become available for clinical use in high concentration and in a form within the economic limits of sufferers from the disorder. At the present time numerous reports of treatment with cortical substance continue to appear in the literature. Although it is said that when this treatment is given the patients feel better and the blood pressure appears to rise, death from Addison's disease seems to be the ultimate outcome.

The authors state that they have used a commercial preparation of cortical substance only occasionally and have observed little objective evidence of a beneficial effect. In one of their cases in which a diet with a high salt content was given, the patient remained weak and the blood sodium fixed at a level of about 125 milliequivalents per liter over a period of many weeks. Therefore, 4 c cm of a commercial preparation of cortical extract were given by intramuscular injection daily for four days and then 10 c cm daily for two days. No effect on the blood-sodium level was noted. In the case of a patient who received 25 c cm of cortical extract in one day there was a fall in the sodium level.

The article is summarized as follows:

If adrenal insufficiency in man is not relieved by the administration of salt it will not be relieved by commercial cortical extracts given in the usual dosage. Distinctly hopeful for the future of the latter type of therapy, however, is the fact that the commercial extract is entirely adequate for the healthy survival of the adrenalectomized dog.

The studies reported indicate that there is a definite relationship between sodium metabolism and the active principle of the adrenal cortex. When cortical insufficiency develops, the disturbances of sodium metabolism are manifested in a number of ways that have significant diagnostic and therapeutic implications. The sodium concentration of the blood is decreased because of an increase in the rate of sodium excretion. The diagnostic change in the sodium level becomes more apparent and specific when salt is withdrawn from the diet. However, the withdrawal of salt may result in a dangerous adrenal crisis. Conversely, the administration of salt will frequently alleviate acute adrenal insufficiency, and the continuation of this therapy mitigates to a considerable extent the signs and symptoms of Addison's disease. When destruction of the adrenal glands is complete, salt alone will not maintain life.

J. SIDNEY RITTER, M.D.

Planni, L.: A Study of Renal Function in Relation to Urological Surgery (Studio della funzionalità renale in rapporto alla chirurgia urinaria). *Arch Ital di chir* 1934, 35 905

Planni emphasizes the great importance of an accurate knowledge of the functional ability of the kidneys both in the choice of operation for a given patient and in the reduction of operative and post-operative risk. He states that the most frequent cause of postoperative complications in urological surgery is the crises of hyperazotemia accompanied by a fall in the blood alkalies and chlorides. This complication comes on shortly after operation and is precipitated by metabolic or toxic factors developing as the result of the operation. The metabolic production of nitrogenous substances is increased and the filtration of these substances by the kidney is decreased. In cases of postoperative renal complications the author has found a form of acidosis due to the retention of ketone bodies and changes in the alkali reserve resulting from disturbances in the respiratory and circulatory systems and sometimes also in the liver in addition to renal changes. The renal tests of renal function give no trustworthy indication of the likelihood of postoperative renal complications, but any pre-operative disturbance of renal function revealed by these tests should be corrected so far as possible before the operation. To these tests should be added a careful checkup of the body as a whole. The anesthetic used should be the one which will least increase any existing reduction of functional efficiency.

Renal function is the result of two acts of factors, the one fixed and dependent on anatomical factors and the other variable and dependent on both intrarenal and extrarenal factors. Therefore the condition of the kidney is estimated best by determining the absolute and relative functional capacity.

Functional tests may be classified into two groups, those of excretion and those of retention. The most accurate results are obtained by the use of a test from each group.

As far as possible, all errors of technique should be eliminated from the tests. To reduce error to the minimum, it is often desirable to test the kidneys separately under normal physiological conditions.

The author believes that the best tests of total kidney function are the phenolsulphthalein test and determination of Ambard's constant. Other tests he considers less trustworthy with regard to the prognosis.

To ascertain the reserve power of the kidneys, Planni has developed a test which he calls the test of recuperation (*prova del recupero*). In this test the renal elimination of urea is stimulated by the intravenous injection of a drug called *adilarene*, and specimens of urine are taken at intervals of fifteen minutes. After the diuresis has reached a constant level the amount of urea excreted is calculated as the Ambard constant is determined for the condition of the kidney before and during the test. The urinary nitrogen remains constant as the patient has

been kept fasting. From the findings in 150 cases Planni concludes that a recovery index of 10 per cent shows that the risk of postoperative kidney complications is low but that renal function must be conserved as far as possible. In special cases the application of his test to each kidney separately yielded information regarding renal function that was unobtainable by other means.

FRANCIS T. LANEY, M.D.

Colletti, P. R.: The Mechanism of Action and the Early and Late Results of Decapsulation in the Treatment of Hemorrhagic Nephritis (Sul meccanismo di azione della decapsulazione renale nei casi di nefrite emorragica). *Arch Ital di med* 1935, 2 695

This is a general review of hemorrhagic nephritis, its differentiation, and its treatment with special regard to the effect of decapsulation of the kidney. Ten cases are reported in detail from the onset of the condition to the final result.

From the pathological and symptomatological points of view the hemorrhagic and inflammatory varieties of nephritis are not easily differentiated. From the therapeutic point of view their differentiation is important as in the hemorrhagic variety decapsulation of the kidney yields good results.

Decapsulation should be reserved for patients with chronic nephritis who do not respond to medical treatment. Its effect is probably due to an action on the nervous vasodilatation mechanism which allows the blood to pass through the kidney more easily especially because of more rapid emptying of the organ, and thereby prevents the stasis which may lead to hemorrhage.

A. LOREN ROSE, M.D.

BLADDER, URETHRA, AND PENIS

Baphir, O., and Shapiro, I. J.: Fatty Infiltration of the Urinary Bladder with Spontaneous Rupture. *Am J Surg* 1935 50 253

The authors' attention was drawn to fatty infiltration (lipomatosis) of the urinary bladder during the histological examination of the bladder of a patient who died as the result of spontaneous rupture of that organ. The histological sections revealed replacement of muscle bundles by fat tissue. Of thirty other urinary bladders examined by the authors, fatty infiltration was found in two.

Normally the urinary bladder is surrounded by fat situated just beneath the peritoneal covering. Anteriorly a considerable amount of fat tissue is present also adjacent to the perivesical spaces of Retzius. The amount of fat varies in general with the amount of adipose tissue throughout the body. As a rule more fat is seen grossly in the posterior wall of the bladder and in the fundic region than in the anterior wall. On histological examination the fat tissue is found to be distinctly separated from the peritoneal covering and the musculature. Between the fat tissue and the muscularis the line of demarcation is very sharp.

In the three bladders with fatty infiltration studied by the authors there was an extension of the perivesical fat tissue into the muscularis. In one of them, the bladder which ruptured spontaneously, the fat in the musculature was recognized grossly. In the two others it was discovered in the microscopic sections. Only one of the patients was obese.

In some sections histological examination revealed that fat had invaded the peripheral portions of the musculature, replacing only the outer layer. In others, it was found in the interstitial spaces of the muscularis at a considerable distance from the subperitoneal fat. Here it seemed to follow the smaller blood vessels. In still others large portions of muscle fibers were replaced by fat which had extended as far as the submucosa. In places the submucosa was partially replaced by fat. The replacement was most marked in the bladder which ruptured spontaneously. Often islands of muscles completely surrounded by fat were seen. Some of the muscle fibers were distinctly atrophic, their cytoplasm was granular and their nuclei were hardly visible. Occasionally, only remnants of muscle fibers were seen. In a few histological fields the entire wall of the urinary bladder consisted of fat.

In two of the bladders other changes besides fatty infiltration were found. In one, a chronic cystitis was present, and in the other a diffusely infiltrating primary carcinoma. In both, the fatty infiltration was an incidental finding. Only in the case of spontaneous rupture was it the sole abnormality in the bladder.

C TRAVERS STEWART M D

GENITAL ORGANS

Voelcker, F • The Present Status of the Prostate Problem with Particular regard to the Operative Technique (Der augenblickliche Stand der Prostatafrage mit besonderer Berücksichtigung der operativen Technik) 59 Tag d deutsch Ges f Chir, Berlin, 1935

In inflammatory diseases of the prostate it is necessary, from the standpoint of treatment, to differentiate hematogenous metastatic prostatitis from suppuration arising by way of the canal system. In the former, the more dangerous form, only early opening of the focus from the perineum or by the ischiorectal route can result in relief and cure. An abscess in prostatitis of local origin may be treated expectantly as it tends to rupture spontaneously into the bladder or urethra. Chronic cases with cyclic rises in the temperature require extirpation of the prostate. For tuberculosis, Voelcker has abandoned radical operation except perhaps when there are cavities in the prostate which are the site of a mixed infection.

Adenomas of the prostate are divided for practical purposes into three different anatomical forms: the extravasical adenoma, the intravesical adenoma with protrusion of both lobes into the sphincter ring, and, the isolated formation of a so-called middle lobe. Under the influence of the adenoma the

urethra takes on the shape of a saber sheath similar to that of the trachea when the thyroid is enlarged. Atrophy of the prostate has its origin in an annular induration in which small adenomatous nodules are sometimes present (miniature forms of prostatic hypertrophy). For these sclerotic forms chronic inflammatory processes are responsible.

There are three routes of approach to the prostate: the transvesical route from above, the perineal route and its various modifications, one of which is the ischiorectal route described by Voelcker, and the route by means of an instrument introduced through the urethra. The approach from above is technically easy. Care should be taken to avoid, unnecessary separation of the bladder from the pelvic cellular tissue. The difficulties in the lower approach are due to the narrow limits imposed by the anatomical relations and the danger of injury to the rectum. In the perineal approach, division of the muscular attachments between the anus and the urethra is necessary to get at the prostate. The advantage of the ischiorectal approach is that it is made at the side of the rectum through the fat down to the levator ani and after this muscle has been divided the prostate can be separated from the rectum easily in the loose connective tissue.

Of chief importance in the shelling out of the prostatic adenoma is the discovery of the loose stratum separating the adenoma from the capsule. In the removal of the prostatic adenoma the prostatic portion of the urethra must also be removed. On the bladder side and on the urethral side smooth cuts should be made as they allow much better healing. The author describes in detail the technique of the enucleation maneuver by the various methods of approach. When the approach is from below, the incision in the capsule must be made large enough. The enucleation can often be facilitated by slitting the tumor in the posterior midline. With a good view of the field it is possible to avoid injury to the sphincter fibers.

Before a prostatectomy is performed a renal function test is essential. In many cases the patient's condition can be improved sufficiently to permit operation by careful pre-operative treatment and sometimes by the formation of a suprapubic fistula. In every case an in-dwelling catheter should be used for eight days before the operation. Hemorrhage in enucleation of the prostate arises either from the mucous membrane of the bladder in the vicinity of the sphincter or from the anterior parts of the prostatic capsule where the afferent arteries lie. It is best prevented by careful ligation or acupressure and coagulation by diathermy. Tamponade of the prostatic bed can be carried out most exactly in operations from below. After the operation it is best to let the urine be discharged through the urethra and through the operative wound at the same time, as this double route affords greater safety. Complicating epididymitis is prevented by preliminary ligation of the spermatic cord. This procedure may serve also to prevent thrombosis and

emboli in some of the sequelae of operations on the prostate such as stricture, fistulas, and incontinence of the sphincter can be prevented by a careful operative technique. Workker has seen four cases of complete electrical occlusion of the urethra after prostatectomy. He was able to restore patency by performing the electrolysis.

Carcinoma of the prostate recognized before operation is not treated surgically but only irradiated with the roentgen ray. Prostatic atrophy requires surgical slitting of the ring of induration which is best accomplished by the approach from above. Still better is the excision of portions of the induration when this is possible.

The history of endo-urethral method of treating disease of the neck of the bladder extends back more than one hundred years. Acceptance of the old idea has received fresh impetus from two improvements: the adoption of optics to endoscopy and the use of the high frequency current with which cutting can be done under water. With modern instrument a wedge of tissue can be cut out and removed. This proved it cannot yet be judged. It is still in the course of development but it is worth careful consideration. It is suitable for vesical adenomas of the sphincter and of isolated middle lobe but does not enter into competition with prostatectomy in the more common forms of prostatic adenoma. The field of greatest usefulness of the different operations may be roughly split as follows: Prostatic suppuration is best attacked from below while trophic changes in the prostate are best treated endoscopically or by sectio alta.

The advantages and disadvantages of the approaches from above and from below are weighed against each other but this question cannot be decided on the basis of statistics. The good results of especially experienced surgeons are due not only to the mode of approach but chief to superior mastery of the operative technique and to long pre-operative and postoperative treatment, and careful selection of the cases. A writer is convinced that not all problems of prostatic surgery will be solved by the transurethral method alone. He states that the rivalry between the upper and the lower routes can not be pushed too far. The surgeon should perfect himself equally in the techniques of both of these routes.

(P. VOLKMER) LUDWIGSBURG, GERMANY

Campbell, H. E. The Rationale of Epididymovasculectomy in Genital Tuberculosis. *J. Urol.* 1935 34 3

After analyzing statistics presented by opposing schools with regard to the primary focus of genital tuberculosis, the author divides the cases into two groups: those in which the focus without renal involvement. Arrived at the theory point widely accepted, the primary focus is the epididymus.

In discussing the treatment of genital tuberculosis, Campbell emphasizes the importance of re-

moving a large portion of the vas when the epididymus is removed. When the involved vas is resected the prostate and seminal vesicles are relieved of a constant trickle of tuberculous material and may become cured spontaneously. To prevent involvement of the second epididymus, Campbell advises removal of a section of the vas at the level of the internal ring.

WALTER MICHAELE MD

MISCELLANEOUS

Flannery, D. N. The Necessity for Both Excretory and Retrograde Pyelography in Certain Cases. *Br. J. Urol.* 1935 7 14

The author reports cases showing the importance of excretory studies of renal excretion and of retrograde pyelography as supplement to excretory urography.

In the first case excretory urograph showed hydronephrosis of the right kidney but failed to reveal the minor calyces. Ascending urography permitted a study of the ureters, bladder and made it possible to obtain urine for bacteriological study. A diagnosis of hydronephrosis due to an arterial blood vessel was made. Operative intervention was refused.

In the second case excretory urography revealed hydronephrosis of the left kidney but the relation to the urinary tract of a shadow in the region of the kidney could not be determined by that method. A retrograde pyelogram showed that the cause of the hydronephrosis was a kink in the ureter and that the shadow was in the lowermost calyx of the kidney.

In the third case in which there was marked hematuria excretory urography failed to demonstrate the cause of the hydronephrosis whereas retrograde pyelogram showed a definite defect in the ureteropelvic junction apparent due to an injury sustained twenty years previous.

Intravenous excretory urograph fails to give definite information in the following conditions:

1. When the kidney is normal and excretion occurs so rapidly that no shadow is produced.

2. When there are such extensive destructive changes in the renal parenchyma that there is no excretion of the opaque medium injected intravenously.

3. When there is inhibition of renal function as the result of either acute blocking of the ureter or transitory paralysis of the nerves of secretion due to acute hyperemia.

In the fourth case reported by the author there were symptoms of block of the right kidney of probably benign origin. To determine whether the patient had a left kidney and to ascertain its function before operation the left kidney only excretory urograph was used. Absolute failure of elimination on end of the opaque medium followed by a right kidney trace over anuria due to an inhibitory nerve in nerve on renal plexus.

resulting from the intense hyperemia incidental to septic infarcts. A similar absence of elimination after excretory urography may be observed in normal kidneys, in kidneys extensively destroyed by disease, and in acute ureteral occlusion.

J SYDNEY RITTER, M D

Winsbury-White, H P. The Etiology of Urinary Calculus. *Brit J Urol*, 1935, 7 103

Winsbury-White reviews the various theories regarding the etiology of urinary lithiasis and reports his observations in 283 cases.

The theory that the formation of uric-acid stones depends upon the ingestion of proteins, and the formation of oxalate stones upon the ingestion of foods containing the elements of those stones are completely obsolete. In early life, urinary lithiasis is largely a deficiency disease, and in later years the consequence of a chronic focus of inflammation or some form of bladder-neck obstruction. The theory that the capacity of the urine to keep salts in solution at unusually high concentrations is due to the presence of colloids has been rendered doubtful by the findings of modern research. The author believes that this capacity is dependent chiefly upon the hydrogen-ion concentration, but that heredity and race may also be factors. As an indication of the influence of race he cites the fact that the Negro is outstanding in his freedom from lithiasis.

Winsbury-White attributes apparently geographic or climatic influences more to differences in diet and hygiene than to the location in which the patient lives. In discussing urinary lithiasis as a deficiency disease he quotes McCarrison as saying that there are positive and negative factors in the relationship of dietetic errors to stone formation. The positive are an excess of calcium and an unknown agent in

whole cereal grains. The negative are a deficiency of Vitamin A from animal sources and a deficiency of phosphate relative to the amount of calcium in the diet. Disease of the parathyroids, by influencing the amount of calcium and phosphorus in the blood, has a relationship to the condition. Inflammation is frequently a factor.

The original focus of infection is usually in the genito-urinary tract. Its most common sites are the prostate in the male and the uterine cervix and bladder neck in the female.

Vitamin D causes increased absorption of calcium and phosphorus from the intestine into the blood stream and consequently increases their proportion in the urine, thus favoring the formation of stones. Urinary lithiasis is favored also by dilatations, abnormalities, foreign bodies, and traumatic lesions in the urinary tract and by spinal injuries.

FRANK M COCHEMS, M D

Riches, E W, and Robertson, J D. The Value of the Urea-Clearance Test in Urinary Surgery. *Brit J Surg*, 1935, 23 128

The authors compared the blood-urea, urea-concentration, blood-creatinine, and phenolsulphonphthalein tests with the urea-clearance test in 109 cases of urological conditions including prostatic obstruction, renal tuberculosis, renal calculi, ureteral calculi, hydronephrosis, and pyonephrosis. The technique of the test and the methods of calculation are described. Case reports are presented to show that operation is safe when the urea-clearance is above 60 per cent of the normal, but hazardous when it is below that level. In unilateral kidney disease, no total renal function test is of value. Urea-clearance is decreased by urinary infection.

THEOPHIL P GRAUER, M D

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Phemister D. B.: Bone Growth and Repair. *Ann Surg* 1935, 101, 25

Bone growth and repair are considered jointly because of the similarity of the processes and the interrelationship of the changes.

During the process of growth, bone may be laid down either in cartilage or in fibrous tissue or membrane. The increase in the length of shafts and in the size of epiphyses is effected by endochondral ossification, while transverse growth of shafts, transformation of growth of cancellous bone, and the total growth of the bones of the vault of the skull and most of the face occur by fibrous ossification.

The rate of longitudinal growth of the long bones has been studied and the results utilized in determining the time for the operation of growth arrest by epiphyseodysphysal fusion for inequality in the length of the limbs. Fletcher found the percentages of growth at the two ends to be as follows: Femur, upper end, 21 per cent, lower end, 79 per cent. Tibia, upper end, 56 per cent, lower end, 44 per cent. Humerus, upper end, 81 per cent, lower end, 19 per cent. Radius, upper end, 18 per cent, lower end, 82 per cent.

Bone growth is influenced both by hereditary and acquired factors. There is a markedly inherent tendency for both growth and structural differentiation of bones independent of stress and strain. This was demonstrated by Fell in explanted embryonic chick femurs and by Huggins in the tail of the newborn rat transplanted into the abdominal cavity of the animal. Mechanical stimuli influence transverse or fibrous growth of shafts more than longitudinal growth and epiphyseal growth through cartilage. This is evidenced by the narrow but relatively long shafts and the large epiphyses in children with prolonged paralysis from poliomyelitis or marked ankylosis from chronic arthritis.

The effects of the endocrines on bone growth are discussed. The anterior lobe of the hypophysis augments bone growth. Its overfunction in man causes gigantism and delayed closure of epiphyseal lines if it begins before normal growth is complete and acromegaly if it begins after the completion of normal growth. Hypophysectomy in young animals causes dwarfism. The influence of the gonads is imperfectly understood. Castration delays the time of closure of the epiphyseal lines, but castrates are usually of normal size. Tandler and Gross claimed that in some cases it may result in mild gigantism.

The hypofunction of the thyroid occurring in cretinus results in dwarfism during the normal period

of bone growth and in open epiphyseal lines in adults. Hyperfunction of the thyroid is not known to affect skeletal growth. Parathyroid hyperfunction due to a parathyroid tumor results in calcium depletion of the skeleton. The bones continue to grow in length and the epiphyses to enlarge, but the shafts are narrower and more porous than normal.

The sympathetic nerves appear to play no special rôle in bone growth.

Growing bones are in a constant state of structural change which affects the metaphyses most and the cortex in a decreasing degree away from the ends.

The author discusses bone repair mainly as it occurs after simple fractures or aseptic operations on the skeleton. He states that the stimulus for bone repair is unknown, but the split products of the breaking down of the proteins of the injured bone, marrow and surrounding soft parts may be factors. The breaking down of the fibrin of the blood clot may also be active since according to Carrel, it liberates growth-stimulating substances. Morphologically the callus formed within the marrow cavity ossifies by fibrous ossification while the periosteal callus ossifies partly by fibrous and partly by endosteal ossification. Cartilage always appearing to some extent in the process. Some bone is always killed in the fragment ends as a result of the trauma and the cutting off of the circulation. This is gradually invaded by blood vessels and osteoblasts and absorbed and replaced by new bone. In fractures bordering on joints, such as those of the neck of the femur and the navicular bone, large areas of bone may be killed by the cutting off of the blood supply to the joint fragment, non-union being thereby favored. Creeping replacement of such dead bone by new bone may go on for a period of years.

The existence of a specialized osteoblast is supported by the greater tendency of bone to form from cells of the injured periosteum and marrow at the site of a fracture or resected cortex than from other connective tissues, such as fascia transplanted in their place. It is proved definitely by the occurrence of ossification in the metastasis of an ossifying bone sarcoma located in tissue disconnected from bone such as the skin or the lung. This is strong evidence against the humoral theory of ossification of Leriche and Policard, according to which any collagenous connective tissue may ossify if a local depot of calcium and a local acidity are present. Bone formation is favored by (1) optimal physical conditions for the precipitation of calcium salts on surfaces which are provided by newly formed collagen fibers and cementoid (2) optimal chemical conditions, which are provided by the presence of calcium ions, phosphate ions, and carbonate ions.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

in the tissue fluid. For precipitation of the calcium salt its solubility product constant must be exceeded. This may be brought about by the enzyme phosphatase which increases the phosphate ion, or by an increase of the carbonate ion, as by a carbonase, or of the calcium ion. Definite knowledge as to the cause is still lacking but the result is the precipitation, not of calcium carbonate and tri-calcium phosphate as separate salts, but of the double salt of the two in the crystal form of dahlite. This fact has been demonstrated recently by roentgen-ray spectrographic studies of bone.

Leriche, R., and Pollicard, A. *An Attempt at a General Classification of Diseases of Bone* (Essai de classification générale des maladies des os) *J de chir*, 1935, 46 161

Leriche and Pollicard state that the bones should be studied from the standpoint of the osseous substance, the osseous tissue, and the bones as osseous organs. The bones are made up partly of a hard substance without vascularization or innervation. This is the osseous substance. The osseous substance is always closely associated with a connective tissue supplied by blood vessels and nerves which penetrates the osseous substance and determines its arrangement. The osseous tissue, which is formed by the hard substance with its soft tissue spaces, is therefore a living complex tissue with its constituents in constant interaction. It is arranged in the skeleton in individual bones, each with its separate form, structure, and function. Each bone is an organ.

On this basis, diseases of the bones may be classified as those of the osseous substance, those of the osseous tissue, and those of the bones as organs.

Diseases of the osseous substance include fragility of the bones with a predisposition to multiple fractures, recurrent fractures of the callus, and osteoporosis.

As the osseous tissue is complex, diseases of this tissue must be still further subdivided according to the elements of the tissue affected. The authors suggest the following classification:

1. Diseases due to disturbances of the calcium cycle, which may be due to (a) insufficiency of its supply of calcium in the food or insufficiency of its assimilation from the gastro-intestinal tract, (b) insufficient fixation of the calcium, as in Avitaminosis D, insufficient ultraviolet light, rickets, general osseous dystrophies, (c) excessive osteolysis (disturbances of utilization of the calcium of the bones). The latter may be associated with hyperparathyroidism as Recklinghausen's disease and possibly osteomalacia. Except for the possibility that the parathyroids may play a rôle, the mechanism may be unknown, as in Paget's disease, or there may be a vasomotor factor, as in post-traumatic osteoporosis and exostoses.

2. Diseases of the intra-osseous or periosteal connective tissue, including infectious conditions such as osteomyelitis, tuberculosis, and syphilis, tumors,

such as myxoma, lipoma, solitary bone cyst and osteosarcoma, periosteal dysplasia, and a certain type of pseudoarthrosis.

3. Diseases of chondrogenesis, such as chondroma, achondroplasia, the dyschondroplasia of Ollier, dwarfism, and gigantism. These diseases are probably all of humoral, and often of endocrine, origin.

4. Diseases of the reticulo-endothelial tissue—reticulo-endotheliosis, Ewing's sarcoma, and thomatosis of the long bones.

5. Diseases of the intra-osseous hematopoietic tissues—myeloid leukemia, multiple myeloma, and myelosarcoma.

Conditions involving the bones as organs include diseases of morphogenesis (acromegaly), anomalies of development, and fractures.

Alice M. Meyers

Havranek, M. *The Relation Between the Growth of Bone and Tuberculous Osteo-Arthritis* (Rapport entre la croissance des os et l'état des ostéo-arthrites tuberculeuses) *Rev d'orthop*, 1935, 42 323

Havranek has been occupied exclusively in a study of tuberculosis of bone over a period of ten years. In this article he deals with changes that occur in the growth of bone in cases of tuberculous osteo-arthritis. In his discussion he limits himself to consideration of the knee.

In its earliest stages the tuberculous process produces a local inflammatory hyperemia. At first, the effects of this are confined entirely to the part involved, but soon a more generalized effect is evidenced by an increase in the rate of growth of the entire limb due to increased activity of the osteogenic tissue. This can be demonstrated by repeated roentgenograms which show the accelerated growth of the epiphysis and metaphysis of all the bones of the affected limb.

Following the period of accelerated growth there is a period of retardation of growth. This follows a definite plan, being noted first in the metaphysis of the humerus, then in that of the tibia, and finally, in that of the femur.

Proceeding to the state of complete cure (if destruction of bone does not occur), the bone resumes its normal course of growth so that its markings resemble those of the normal side.

By calculations, the details of which are included in another report, it is possible to determine the time when the lesion began and the time when it became arrested.

Alterations in growth occur also in osteomyelitis, congenital syphilis, and Legg-Calve-Perthes disease, but according to a pattern entirely different from that of the changes in tuberculosis.

Marshall W. Poole, M.D.

Jones, S. G. *Volkman's Contracture* *J Bone & Joint Surg*, 1935, 17 649

Volkman's contracture is associated with injury of the elbow region. In 80 per cent of the cases it follows a supracondylar fracture of the humerus.

and in so per cent a crushing injury with internal hemorrhage. It occurs only in the region of the elbow and forearm, doubtless because of the enclosure of this region by a firm, resisting fascial envelope from which hemorrhage cannot escape, and because of the peculiar anatomical structure of this region. As the brachial fascia passes directly over the brachial artery, pressure on the artery results when this fascia is placed under tension.

Of the many theories advanced to explain the contracture the most logical attributes the condition to obstruction of the brachial artery resulting in interference with the blood supply of the arm and hand. This obstruction may be due to direct injury to the artery itself or to intrinsic pressure upon the vessel caused by hemorrhage within the fascial envelope.

When, following the reduction of certain injuries of the elbow the hand is cold and anesthetic, the radial pulse is absent, and the elbow becomes progressively more swollen and painful, immediate fasciotomy is strongly indicated. In the procedure followed by the author an incision is made on the flexor surface of the elbow medial to the biceps tendon and the fascia opened widely. If the brachial fascia is found under tension it also is incised. The brachial artery is inspected for possible damage and repaired if necessary. The fascia is left open and the skin loosely sutured. A posterior molded cast is then applied, the arm being left in the extended position and elevated on a pillow. In one case the brachial artery was completely severed, but after release of the pressure by this means, the collateral circulation was sufficient to supply the hand and forearm. In cases of impaired circulation, the fracture is of secondary importance and further reduction should be postponed until the circulatory disturbance has been corrected.

Since his adoption of this procedure as a routine measure, the author has had no cases of Volkmann's contracture following injury of the elbow.

ROBERT S. REECE, M.D.

Mittler W. J. and Ayer J. B. Herniation or Rupture of the Intervertebral Disk into the Spinal Canal. A Report of Thirty-Four Cases. *New England J. Med.* 1935 5: 185.

Herniation of an intervertebral disk into the spinal canal is a definite pathological entity. When the protruding mass reaches from 0.5 to 1 cm. in size it may produce symptoms. Such a mass has been diagnosed by some as an "enchondroma" and described by Schmorl as a "prolapse of the nucleus pulposus." The cause is uncertain although trauma is a definite factor in over one half of the lesions occurring in the lumbosacral region. In the cervicothoracic group trauma is of less importance. The lesions occur more often in the male than in the female and are most common in advanced age.

Symptomatically the lumbosacral lesions are of two types those producing the classical picture of sciatica or low back strain, and those with the

syndrome of tumor of the cauda equina. In cases of lesions of the former type which are such the more common, there is a severe and usually unilateral sciatic neuralgia and the hernia is located well out in the foramenal notch. In cases of lesions of the second type the hernia is near the midline and the patient complains of severe motor and sensory loss with paralysis of the sphincters. In twenty-three cases of lumbosacral lesions, the first and most outstanding symptom was pain which was usually unilateral. There was no regular course to the disability. Many of the patients had been treated over a long period of time for sacro-lumbar sprains, sciatica, or some other disorder of the lower part of the back. In fifteen of the twenty-three cases the lesion was in the disk between the fourth and fifth lumbar vertebrae. In eight cases no neurological abnormality was found.

In eight cases of cervicothoracic disk hernia the symptoms and signs were similar to those of a tumor anterior to the cord. The usual findings are spastic paraplegia with minimal sensory loss below the lesion and an ill defined zone of hyperalgesia. Ataxia is absent in cases of cervical hernia but present in those of thoracic hernia.

Examinations of the spinal fluid are of great importance, particularly quantitative protein determinations and tests for spinal block. In thirty-three of the thirty-four cases reviewed the spinal fluid protein was increased. Even a slight to moderate increase is of diagnostic importance. Subarachnoid block is partial only but was demonstrated in eight of the eleven cases of cervicothoracic hernia.

Visualization of the disk hernia by lipiodol injection is of paramount importance to confirm the diagnosis before surgery is advised. If enough lipiodol (5 c.c.m.) is used and the patient examined in the prone position and at the proper angle this test will demonstrate the lesion definitely. In neither of two cases in which operation was performed in the absence of lipiodol evidence of a disk hernia was such a hernia found. Roentgenograms of the spine made without the injection of lipiodol always failed to show the hernia.

The treatment indicated is laminectomy with removal of the extruded disk fragment. In the reviewed cases of cervicothoracic hernia the results were moderately satisfactory. In those of lumbosacral hernia they were much better every patient, but one, with leg pain being relieved at once. There was one postoperative death.

CHAS. C. G. R. M.D.

Lenti G. A Contribution to the Study of Superficial Rupture of the Tendon of the Quadriceps Femoris Muscles (Contributo allo studio delle rotture superficiali del tendine del muscolo quadriceps femorale). *Rivista italiana di chir. e ortop.* 1935 6: 633.

Rupture of the tendon of the quadriceps femoris muscle is an uncommon lesion. Only about 100 cases have been reported in the literature.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

The case reported by Lenti was that of a man sixty eight years old who suffered an injury of the knee in a fall from a bicycle. Two days later, while walking with heavily nailed shoes, he suddenly slipped and made a violent effort to save himself by falling backward. This effort was accompanied by intense pain in the region of the knee. The rupture of the tendon of the quadriceps femoris muscle was discovered on roentgen examination.

Under local novocain anesthesia a longitudinal incision was made on the anterior aspect of the knee joint. The tendon was found ruptured and the proximal end was sutured to the distal end.

JOINTS, MUSCLES, TENDONS

tion strain, which may result in splitting of the cartilage if weight is borne on the limb or in damage to the coronary or other attachment, and (3) hyperextension strain, resulting in a tear of the anterior crucial ligament or an avuls on fracture of the tibial spine.

The semilunar cartilages are avascular except at the edges. When there is a split in the substance of the cartilage, no healing can be expected and rupture of the cartilage is probable.

of the tendon of the quadriceps was discovered on roentgen examination after local novocain anesthesia. A longitudinal incision was made on the anterior aspect of the upper portion of the knee. The tendon was found detached at its insertion and the proximal portion drawn up and for about 3 cm. The articular capsule appeared to be lacerated and joint fluid mixed with clotted blood oozed from the joint cavity. The tendon was reattached by means of a central silk suture uniting the upper tendinous stump with the tendinous portions and the periosteum of the patella. In addition, 2 sutures were inserted on each side for reinforcement. The leg was immobilized in extension one month. Later the patient was discharged in excellent condition. The author classifies ruptures of the tendon of the quadriceps femoris muscle as (1) direct traumatic, (2) indirectly traumatic, (3) spontaneous or a result of an old trauma or chronic traumatism or a pathological condition. Predisposing factors are advanced age, arteriosclerosis, nephritis, syphilis, chronic rheumatism, diabetes, and gout. The formation of osseous and cartilaginous tissue in the substance of the tendon and inadequacy of the blood supply with advancing age are of great etiological importance.

The symptoms of the condition are intense pain when the rupture occurs and later pronounced pain when an attempt is made to extend the leg. The pain elicited on palpation is usually no severe. The condition must be differentiated from fracture of the patella. The final diagnosis is usually made by the roentgenogram.

As a rule the prognosis is good. After the operation rehabilitation should be begun early. At first the exercise is passive, particularly if the suture material has been used.

Dr. J. W. R. Internal Derangement of the Knee Joint. 111 pp. 1st ed. N.Y. 1913. 17 10c

[illegible]

was occurred in a few cases and thrombosis in one. Fluid is usually present when activity is begun, but generally causes no great difficulty.

ROBERT S. REICH, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Macaggi, G. B.: A New Method of Covering the Stump After Amputation of the Leg. (*Ritorno ad un nuovo criterio di copertura del moncone di amputazione della gamba*). *Arch. ital. di chir.* 1935 40 38.

Macaggi gives a brief critical review of the various methods of amputating the leg, especially in cases in which the amputation can be done at the site of election. He agrees with the majority of orthopedic surgeons that amputation is best done through the middle third of the leg, and emphasizes that the most important part of the operation is the formation of an adequate and comfortable pad for the stump. Most desirable is a pad with a posterior scar. Of the various operations designed to obtain such a pad, the one which Macaggi has found most satisfactory is that of Passaggi. Briefly, this may be described as follows:

The incision is begun at a point just back of the internal border of the tibia, carried down long, tidially, and then passed first transversely and then upward, and terminated at the fibula just opposite the starting point. In this way is formed a wide flap longer than the diameter of the limb at the point where the amputation is to be done. The short posterior flap is outlined by a curved incision which is begun about 3 cm. from the upper end of the first incision and passed across the leg to a point opposite the starting point. The two skin flaps are dissected free and reflected upward. The incision in the muscle is exactly opposite that in the skin. The muscles are dissected from the bones and the bones sawed through in the usual manner. As the cut muscles retract more than the skin, sutures of the cut ends will give an adequate pad with the incision in the skin 1 lag on the posterior aspect of the leg.

The author emphasizes that, notwithstanding the size of the skin flaps, he has never seen any evidence of deficiency in their blood supply.

FREDERICK T. LEMAY, M.D.

FRACTURES AND DISLOCATIONS

Gleason, F. J.: Subcutaneous Spike Fixation of Fresh Fractures of the Neck of the Femur. *J. Bone & Joint Surg.* 1935, 7 730.

The author presents a method for the reduction and the subcutaneous spike fixation of fractures of the neck of the femur which he has employed in ten cases.

Anteroposterior roentgenograms of both hips are taken with the sound hip rotated inward about 15 degrees to prevent a foreshortened appearance of the neck, and a lateral roentgenogram of the sound hip is taken to determine the angle of anterior inclination. Previously prepared well padded posterior plaster half shells are then applied with the hips and knees flexed to 90 degrees, and reduction is accomplished under scopolamine morphine anesthesia by traction in the long axis of the femur and lateral pressure on the trochanter. Abduction held by a crossbar is effected to lock the fragments, and the extremities in the plaster shells are supported on pedestals.

Under a sterile technique, three hatpins are then inserted to serve as landmarks—one at the tip of the trochanter and the others at the anterior and posterior margins. Between the pins two Kirchner wires are driven 1 cm. apart through the neck into the acetabulum to prevent tilting of the head. Roentgenograms are then taken to determine the position. If the position is satisfactory five reusable steel spikes are drilled into the bone under further roentgen control. After satisfactory insertion of the spikes the Kirchner wires and hatpins are withdrawn, the spikes are cut as short as possible, a dressing is applied over the puncture wounds, and the patient is placed in bed with sling suspension if desired. Full tub baths with underwater exercise may be given as early as the second day.

MARRARA B. STROMBERG, M.D.

possible that the improvement which often takes place is due to the re-adjustment to the circulatory needs of the foot rather than to an increase in collateral vessels) and (4) release the vasomotor spasm. The following procedures have been used in the attempt to secure these results: rest in bed with especial attention to the position of the involved foot; the use of hot packs of saturated boric acid solution to control spreading infection; local applications of Dakin's solution; careful hygiene of the feet to prevent pressure sores; massage of the feet with hydrous lanolin; Boeger's postural exercises; general supportive measures such as the administration of iron for anemia; restriction of smoking; peripheral sensory nerve block; protein shock with typhoid vaccine given intravenously; and, in a limited number of cases, sympathetic ganglionectomy.

Of 55 cases of thrombo-angitis obliterans entering the Massachusetts General Hospital in the last seven years, a minor amputation was done in 35 per cent and a major amputation in 26.4 per cent. Of 55 cases of arterio-arteriosclerotic gangrene a major amputation was done in 54.5 per cent and of 233 cases of diabetic gangrene, a major amputation was done in 46.5 per cent.

The author discusses the indications for minor and major amputations in these conditions.

HENRIET F. THURSTON, M.D.

Kraheffelt, L., Rosensthal, M., and Loughlin, E. H.: Periarthritis Nodosa (Necrotizing Pararteritis) in Childhood with Mesodermal Involvement. Report of a Case with a Study of the Pathological Findings. *Am J M Sc* 1935, 190, 106.

The authors report in detail a case of necrotizing pararteritis (periarthritis nodosa) in a girl nine years of age, bringing the number of cases of periarthritis nodosa in infancy and childhood recorded to date to twenty-six.

The term "necrotizing pararteritis" is suggested as being descriptive of the lesion in this arterial disease and preferable to the older designation "periarthritis nodosa." The lesions are not nodosa but extend over extensive segments of the affected arteries, as may be demonstrated by serial sections. They are not purely perivascular; both the coats of the arteries and the perivascular tissue being involved in the extensive necrotizing process. The lesions encountered in the authors' case fit well into the classification of Arkin who divides the disease into a degenerative, an acute inflammatory, a granulation tissue, and a healed stage. The majority of the lesions studied by the authors were in the granulation-tissue stage. None was in the healed stage. In some instances the degenerative, acute inflammatory and granulation-tissue stages were found in the same artery. Therefore it is impossible to say which coat was the site of the earliest change.

The perivascular and adventitial nodules produced by proliferative changes and containing epithelial cells, giant cells, and round cells have a striking resemblance to the infectious granulomas. Giant

cells were found in both the nodules and the media. The presence of a leptomenigitis in this case is of particular interest since no case of meningitis due primarily to periarthritis nodosa has been reported previously.

The occurrence of unusual features such as gastrointestinal ulceration with perforation and peritonitis, ulceration of the skin following injury and oculo lesions is discussed briefly. Only two cases of ulceration of the skin in children have been reported previously. In the case reported by the authors the ulceration was extensive, involving the deeper portions of the corium and superficial fascia, and there were typical periarthritic lesions in the base of the ulcer and in the surrounding tissues.

HENRIET F. THURSTON, M.D.

LYMPH GLANDS AND LYMPHATIC VESSELS

Moore, Benda, and Rousslet: Treatment of Tuberculous Adenitis by Intralymphatic Injection of Formalized Chlorophyl in Ether Solution (*Traitement des adénites tuberculeuses par l'injection intralymphatique de chlorophylle formolée en solution étherée*). *Presse Méd* Paris 1935, 43, 172.

While intralymphatic injections have given no constant nor satisfactory results in cancerous adenitis, they have proved most efficacious in the treatment of tuberculous adenitis.

The injection fluid used by the authors, lympho-sclerol, is an ether solution of formalized chlorophyll having both a penetrating and a sclerosing action. It easily penetrates the whole lymphatic area surrounding the injected gland, sometimes even farther and causes the gland to undergo sclerosis.

The authors have tried treatment with intralymphatic injections of this fluid in 3 types of cervical tuberculous adenitis: (1) chronic adenitis, consisting of congestive hypertrophy of a principal gland surrounded by a group of small isolated glands; (2) glandular masses consisting of several conglomerated glands in compact tumefaction surrounded by periaadenitis; and (3) fistular adenitis with lesions of the cellular tissues and skin. As a rule the patient is suffering from multiple, unilateral or bilateral, glandular lesions in different stages of development.

The amount of the solution injected varies according to the individual case from 2 to 10 c.c.m. However, it is wise in the first injection, not to exceed 4 or 5 c.c.m. If the injection is made in the vicinity of the parotid, involving danger of transitory facial paresis due to retrograde extension of the fluid, the injection should be interrupted at the first signs of paresis or pressure should be exerted on the subcutaneous layers against the jaw bone during the injection. The number and sequence of the injections must also be determined according to the indications in the given case. More frequent injections are necessary in caseous, liquefied or fistular glands with periaadenitis. The elimination of the caseous products transformed into a greenish mass should not be hastened. After a few injections the fistular orifices

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE TREATMENT

Eufinger, H., and Kitz, W.: The Influence of Anesthesia and Operation Upon the Number and Function of the Leucocytes (Der Einfluss von Narkose und Operation auf die Zahl und Funktion der Leukozyten). *Monatsschr f. Geburtsh u. Gynak.* 1935, 99: 379.

In connection with their investigations upon the causes of thrombosis, the authors investigated the influence of anesthesia and of operation upon the function of the leucocytes. They examined this function by testing the agglutinating power of the leucocytes according to the method of von Philippborn.

First the influence of anesthesia alone upon the number and function of the white blood cells was observed. In fifteen cases it was determined that after one hour of anesthesia there was no immediate increase in the number of the leucocytes, but after from three to four hours there was a rise to a maximum of from 16,000 to 18,000. This maximum was not exceeded even in those cases in which a slight leucocytosis existed before anesthesia. After twenty-four hours there was a return to the first level.

When in the course of the anesthetic an aseptic surgical procedure was added a rise in the number of leucocytes occurred in from three to four hours, but return to the first level took place only after several days. The speed with which the leucocyte count dropped to its former value depended upon the extent of the operation and upon the postoperative course.

In fifteen additional cases in which the normal leucocyte count was first obtained, the functional behavior was tested following one hour of anesthesia. In all cases the results were essentially alike—the agglutinating ability remained unchanged. However the results were considerably different in the cases in which some aseptic operative procedure was added to the anesthesia. In seventeen cases in which the leucocyte count was normal before operation, the same increase in leucocytes occurred after operation as in the previous investigations. The agglutinating levels showed no change immediately after the operation, but then they sank to below the first level so that when the leucocytosis was at its maximum the agglutinating value was (its minimum). After this they rose again to a value above the normal. The maximum which was considerably above the normal, was reached from three to four days after the operation. Beginning with the fourth postoperative day there was a gradual decrease to the normal level providing there are no postoperative complications.

The increased preparation for function of the leucocytes at the same time when the leucocytosis decreases allows the conclusion that there is a higher defensive power in the leucocytes at that time. The authors explain this divergent functional behavior by assuming that immediately after an operation there is a leucocytosis which originates from the older cells stored in the bone marrow. After their exhaustion, about the third to the fifth postoperative day younger newly formed leucocytes are released into the blood stream.

In the increased agglutinating power of the leucocytes, concurring with the circulatory changes following an operation, the authors see an important factor in the formation of a thrombosis. They believe furthermore on the basis of one of their cases in which an unexpected increase in the agglutinating value appeared as the first and only prodromal symptom of a severe postoperative coagulopathy, the function test was of diagnostic significance.

The experimental results are illustrated by tables and graphs. (Vox) J. DUNSTON, WILLIAM, M.D.

Brown, J. B., Blair, V. P., and Byars, L. T.: The Repair of Surface Defects From Burns and Other Causes with Thick Split-Skin Grafts. *South M J* 1935, 28: 408-549.

Since the first publication by the authors in 1929 on the use of the thick split-skin graft the field of use of this graft has been found to be much wider than was previously believed.

Photomicrographs of sections of various types of grafts are presented showing that even the thinnest grafts contain some dermis, that the grafts are not cut above the papillary layer as frequently described, and that the thickness of the graft may be varied as desired.

The cutting of grafts is facilitated by the use of a very sharp knife 18 cm. long and a section retractor to tense the skin.

The application of the grafts is facilitated by using large grafts so that the number required will be minimal. The grafts are sewed accurately in place, multiple holes for drainage are stabbed in them, and a very firm dressing consisting of greased fine mesh gauze covered with several layers of plain gauze and soft damp sea sponges for pressure, are applied and very accurately bound in place. When the graft is applied to a granulating wound, the greased gauze is omitted and Carrel tubes are incorporated in the dressing to permit frequent instillations of saline solution.

The technique of the dressing of the donor area is described in detail. Healing is rapid and several crops of grafts may be taken from the same donor area over a period of time.

cum the metabolism of nitrogen and chlorine, the acid-base balance, and postoperative hyperglycemia.

The disturbance in nitrogen metabolism is considered from both the quantitative and the qualitative aspects. Attention is called to the fact that there is a tendency on the part of the body to develop nitrogen retention following any surgical procedure. This is due to the increased output of urea with oliguria of varying degree and a decrease in the ability of the renal cells to concentrate. Qualitatively there is an increase in the amount of non-urea nitrogen formed, partly as polypeptides, many of which are extremely toxic.

Chloride metabolism is disturbed because of the tendency toward the concentration of chlorides in the region of local injury. This is associated with a diminution in the amount of sodium chloride eliminated in the urine and a lowering of the chloride level in the blood. The authors emphasize that the chloride content of the plasma and that of the red cells should be studied separately and always before as well as after operation.

Changes in the acid base balance are of more theoretical than practical interest. This is true of the postoperative hyperglycemia in patients without diabetes.

The treatment indicated is replacement. This is best accomplished by the intravenous administration of a 4 per cent solution of sodium chloride. As a rule 30 gm. of sodium chloride are given over a period of three hours. The total dose injected the first day and subsequently will depend upon the extent of the chloride loss, the intensity of the clinical picture and the duration of the symptoms. The authors outline also a method of prophylaxis.

In conclusion they report observations following operative procedures in the cases of sixteen patients, among whom were aged patients and patients with renal insufficiency, nephritis with edema, heart disease and diabetes.

NATHAN A. WISNICK, M.D.

Stich R.: Postoperative Embolism (Postoperat. Embolie). 39 Tag. d. deutsch. Ges. f. Chir. Berlin, 1935.

It is still believed today that the factors responsible for the thrombus formation is so-called spontaneous thrombosis are slowing up of the blood stream, changes in the blood, and injury of blood vessel walls. The unvarying method of formation of the blood clot shows the importance of the change in the blood stream. Although the ensa saphena plays only a minor rôle in the dissemination of thrombi, great importance is attributed to thrombi in the femoral vein, the deep veins of the calf and pelvis, and the venous plexuses. With advancing age the rate of blood stream changes, the loss of elasticity of the tissues causing it to slow up. The time of one complete round of the circulation increases from eighteen seconds at the age of twenty years to twenty three seconds in senescence. In severe circulatory disturbances Koeh found it as long as sixty-one seconds. With the slowing-up of the blood current

arteriosclerosis and injury of the kidneys begin. Operative shock signifies a further injury to the circulation.

The second factor held responsible for the development of embolism is a change in the blood. As is well known, the head part of the spontaneously formed thrombus is composed chiefly of blood platelets. After operation an increase in the blood platelets of 30 per cent or more has been observed. In addition to changes in the solid constituents of the blood, there are changes of a chemophysical nature. As the result of changes in the fine relationships between the cells of the blood and the fluid by which they are carried, there is an increased tendency toward adhesion of the blood platelets. Numerous recent studies have shown that the protein groups of the blood with a large molecular structure, the globulin and the fibrinogen, are increased by operation and by other factors. The products of autolysis alone are capable of producing thrombi. The residual nitrogen increases after operation and in senescence. In carcinoma, operation is followed by an increase in the acidity of the blood associated with that condition which also favors thrombus formation.

The third factor in the development of postoperative embolism is an injury to the wall of a blood vessel. Those who perform vascular surgery are aware of the fact that while the gross formation of thrombi may be prevented by care in the suture and transplantation of blood vessels, the fine endothelial injuries resulting from the changes in the mutual relationship between the blood and the vessel walls are not without importance.

Recent studies have indicated that even the weather has an influence on the development of embolism. Emboli occur especially frequently during storms. Apparently this is due to the effect of the electrical processes in the air on the sympathetic nervous system. Whether this effect is a paralysis of the sympathetic nerves or an irritation of the vagus is not yet known.

Postoperative embolism is more common in females than in males. The author does not agree with Haycock that it is to be attributed chiefly to the intermingling of two physically and chemically different types of blood—the blood of the portal vein and the blood from the root area of the cave.

The question as to whether the increase in the incidence of thrombosis and embolism in the last ten or fifteen years has been proved must be answered definitely in the negative. In the majority of studies which claim an increase the age relationships and other important factors mentioned have not been given sufficient consideration. Tables of figures based only upon the clinical diagnosis of embolism without subsequent autopsy control are of no value as only 33 per cent of emboli are diagnosed correctly clinically. In the autopsy material at Innsbruck, Gruber found that even before the war the incidence of embolism varied as markedly as from 0.05 to 3.3 per cent. Although pediatricists and obstetricians noted no increase in the frequency of embolism dur-

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ing the ill-reputed years from 1923 to 1926, general surgeons, internists and gynecological surgeons recognized an increase. The age of pediatric and obstetrical patients cannot have changed, but a change in the age of some of the other groups, due to senescence of the population, appears probable.

Minor operations in general surgery and gynecological surgery are practically never followed by embolism. The more extensive procedures on the head and neck and the upper extremities are also safe in this respect. Exploratory laparotomy, which is usually carried out for malignant, inoperable tumors, is dangerous. Next most dangerous are prostatectomies and colectomies.

The theory of Freund that the tendency toward the development of thrombosis is due to functional weakness of the thyroid is not accepted by the author. The type of anesthesia is without influence upon the incidence of embolism, but the manner in which the operation is performed is of importance. When the operation is performed roughly the postoperative break-down of cells is much more marked. An important rôle, perhaps the most important rôle, is played by age. The progressive loss of water from the tissues, the stratification of the erythrocytes in the circulation, the aforementioned changes in the blood current, the increase in the blood pressure, the increase in the period required for the circulation of the blood, and the increased viscosity of the blood occurring with the advance of age are important. On the other hand, the recent and doubtless too frequently employed injection treatment of veins as the basis for the assumed increase in the incidence of embolism is denied. Adiposity on the one hand, decrease of bodily vigor on the other, and the circulatory disturbances consequent to both favor the development of thrombi. Rehn and Boshamer recognize certain types of persons who are predisposed to embolism. Therefore heredity cannot be entirely ignored. However, in spite of the 'familial' thrombosis of Schnitzler and Payr, exact data regarding this factor are still lacking. The observations reviewed have led Stich to recognize the necessity of viewing the body as a whole before deciding to consider the body as a whole before deciding to perform an operation. The great difficulty in the diagnosis of silent remote thrombosis and pulmonary emboli is another factor rendering preventive measures of importance. Correct placing of the patient, limitation of operative preparation of the patient, getting the patient on his feet early, frequent turning of the patient in bed, repeated elevation of the lower extremities during the day, careful cardiac treatment, and, above all, treatment of the vascular system are the most important measures. Although too much should not be promised for the injection of anti-coagulants, measures which tend to lower the acidosis of the blood are recommended.

In cases in which embolism has already developed, operation for the condition has given a few isolated and inspiring results, but as a rule all that is possible

is the administration of a narcotic and a heart stimulant (strophantoin). Stich urges a widespread combined study by German surgeons to bring nearer to solution at least a few of the many enigmas in the realm of embolism. (R. Stich) JOHN W. BRENNAN, M.D.

ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Ramon, G., Bocage, A., Richou, R., and Mercier, P. *Staphylococcic Anatoxin and Its Use in the Specific Therapy of Certain Staphylococcic Affections* (L'anatoxine staphylococcique et son emploi dans le traitement spécifique de certaines affections dues au staphylocoque). *Presse méd.*, Par., 1935, 43, 1137.

In preparing staphylococcic toxin, the authors use Ramon's peptic peptone veal medium or Martin's peptone medium, with or without the addition of glucose, and a highly toxigenic strain. A current of gas, 80 per cent of which is air and 20 per cent carbon dioxide, is passed through the culture. After five days of incubation at 37 degrees C the culture is filtered. The filtrate contains more or less of the specific toxin which, under certain conditions, will produce specific antitoxins and immunity. The antigenic power of the filtrate can be measured *in vitro*. The anatoxin is prepared by adding 4 c.cm of formal per liter to the incubator at a temperature of 39 or 40 degrees C for fifteen days. The harmless nature of this anatoxin has been proved experimentally. Its antigenic power may be determined by flocculation tests like those used for diphtheritic anatoxin. To produce initial flocculation in 1 c.cm of anatoxin about 10 antitoxic units are required. A close relation exists between the intrinsic antigenic power of the anatoxin and its immunizing activity. The conditions for successful staphylococcic vaccination with specific anatoxin seem to lie in the use of an anatoxin of sufficient antigenic power in sufficient doses.

In testing the clinical efficacy of this anatoxin, the authors at first used dilutions heated to 100 degrees C on the water bath for five minutes, but later employed undiluted and unheated anatoxin. As a rule the local reaction to the injection of the anatoxin consisted of limitation of the mobility of the arm for about twenty-four hours, but sometimes there was also an area of erythema at the site of the injection. The latter subsided in from five to six hours. In some cases fever developed a few hours after the injection, but there were no chills, fluctuations, or digestive disturbances. Only 2 of 100 patients complained of headache and vertigo. About 12 showed no reaction whatsoever. In 1 case a massive injection of 8 c.cm of anatoxin had no ill effect. None of the patients was obliged to remain in bed. Local reactions, which were rare, consisted of a slight increase in the swelling and discharge. In no case did new foci develop.

In the treatment of furunculosis, successive doses of $\frac{1}{4}$ and 2 c cm of undiluted anatoxin are given in 3 injections at intervals of fifteen days. In some, 1 injection of from $\frac{1}{4}$ to 2 c cm is given weekly until the desired effect is obtained. Good results have been obtained in many cases of furunculosis and acne that had resisted other treatment as well as in cases of hidradenitis and onychia. A furuncle treated with anatoxin in the beginning does not go on to suppuration but disappears in from three to five days. If it has already reached the suppurative stage, the elimination is accelerated and granulation begins within one or two days. If a recurrence develops after anatoxin treatment the furuncle does not pass the papule stage and do not go on to suppuration. Cure is obtained in some cases after 2 injections and in others after 3 injections. A few cases of eczema have also responded to this treatment. Only 6 cases proved rebellious. In 5 of these, glycemia of 140 gm and in 1 anotoxemia were found.

In the cases of 30 patients the authors were able to demonstrate that the injection of staphylococcal anatoxin produces a more or less abundant amount of specific antitoxin. Before the treatment the antitoxin was less than unit whereas after treatment it was several units. Although not denying a possible direct stimulation of defense mechanisms by the anatoxin, the authors believe it more logical to assume that the chief role is played by the antitoxin. When, after the injection of anatoxin, the antitoxin of the blood reaches a certain level, it protects the cells and tissues against the necrotizing action of the toxin, thus rendering conditions less favorable for the staphylococci and causing the infection to subside. By the described procedure a vaccine of known and predetermined ultrasonic antigenic power is made available.

LUTHER SCHAEFER MOORE

ANESTHESIA

Schaeffer W. P. Brief and Prolonged Narcosis with Evipan-Sodium in Children (Kurz und Daueranästhesie mit Evipan-Natrium bei Kindern). *Monatsh. Kinderheilk.* 935 539

Inhalation anesthesia is preferred in children as well as in adults. Ether with ethyl-chloride induction, is the most convenient agent. The procedure loses its reputed danger if the following precautions are observed: (1) the ethyl chloride should be administered drop by drop, (2) the administration should proceed very slowly, (3) the number of drops should never exceed eighty, and (4) the change to ether at the analgesic stage must be made rapidly.

Evipan-sodium is a barbituric acid derivative which is administered intravenously in 1 per cent solution. The substance is very rapidly broken down. It has been widely tried in adults, and found to be of value. With appropriate technique, this method of intravenous anesthesia is controllable.

Klagen and Löss report their results with evipan-sodium in children. Its greatest disadvantages are the necessity of injecting intravenously. The author

has used it in many children for surgical and arthroscopic operations. Most of the children were prepared with morphine and atropine. The anesthesia was always started after complete preparation in the operating room, then 4 c cm. of the solution was injected into an arm vein during the first minute, then 1, at the rate of 1 c cm in fifteen seconds. If more than 4 c cm was needed the remainder was given more rapidly at the rate of 5 c cm in ten seconds. With these amounts, intended for brief anesthesia, the author has obtained complete narcosis for as long as twenty-four minutes. However as this was often inadequate, he subsequently injected more evipan. On slow injection the children suddenly stopped screaming and fell asleep in the prescribed time. In older children a slight trembling was observed at times. Convulsions or severe motor disturbances were entirely absent. Awakening from the anesthesia was usually very rapid, but often it is followed by a lighter sleep which frequently lasted as long as two hours. Evipan-sodium was found to be especially advantageous for cleft-palate operations. Serious, although not dangerous, anasthenia was observed in two instances, and consisted of attacks of cyanosis. One of these was due to over dosage. In both cases the cyanosis disappeared in the course of a few minutes following the administration of cornuam. One failure occurred in an eight-year-old boy. The child became sleepy but did not fall into deep slumber and the operation had to be done under ether anesthesia. On the basis of his experiences, the author can only recommend further trial in the cases of children.

(MARTINIAN HIRSH) LEO M. ZIMMERMAN, M.D.

Salvi, L. Considerations and Chemicochemical Studies Regarding Intravenous Anesthesia Induced with a New Barbituric Preparation (Considerazioni e ricerche chimico-chiniche sulla nuova anestesina con una nuova preparazione barbiturica). *Chim. clin.* 935 575

Salvi reports on 100 cases in which anesthesia was induced with evipan sodium in Ferroni's clinic at Brescia. Sixty of the operations were for hernia, 15 were for hemorrhoids or anal fissure, and 25 were laparotomies for various conditions. In the last group evipan was used as the basic anesthetic, but to obtain complete relaxation of the abdominal wall ether was necessary in addition. In most of the other cases evipan was used alone. The fractionated method was employed. The average duration of the anesthesia required for the operations was from ten to fifteen minutes. There were no pulmonary complications. Cyanosis occurred only in an old man with a strangulated hernia. In about 5 per cent of the cases (mostly those of excitable persons or alcohol addicts) the effect of the sodium evipan was inadequate, immediate resort to ether being necessary and the awakening was accompanied by excitement lasting two or three hours.

In the cases of 30 patients receiving evipan alone Salvi studied the blood pressure, coagulation time

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erythrocyte count, blood nitrogen, blood sugar, Ambard's coefficient, and the constituents and hydrogen ion concentration of the urine. In most of the cases the maximum and the minimum arterial pressure dropped from 15 to 20 mm during the operation, in a few, they rose to the same degree, but in all they returned to normal when the patient awoke. In some cases the urine showed a slight content of albumin and a few casts. The other studies showed no changes due to the anesthetic.

The author concludes that his findings prove the safety of intravenous anesthesia induced with evipan sodium. He emphasizes, however, that its harmlessness depends upon the patient's general condition. It is contra-indicated in the cases of patients of advanced age and those with cachexia, hepatic disease, grave infections or intoxications, cardiac decompensation, diabetes, or advanced arteriosclerosis. When employed as a basic anesthetic, evipan sodium effects a notable saving of ether, but according to the author's experience the awakening is stormy. Like every other anesthetic it has its indications and contra-indications. The selection of cases for its use requires mature judgment. M E MORSE, M D

Sise, L F, Woodbridge, P D, and Eversole, U H
Cyclopropane A New and Valuable Gas Anesthetic. *New England J Med*, 1935, 213 303

Cyclopropane is a hydrocarbon gas with the empirical formula C_3H_6 , which is isomeric with propylene. When mixed with certain proportions of air or oxygen it is inflammable and explosive. Its odor is characteristic but not disagreeable. When it is administered in toxic doses, breathing ceases well before the circulation. Its metabolic effects are strikingly few. It produces a slight rise in the blood sugar. The hydrogen-ion concentration and carbon-dioxide combining power are affected little. There is no effect on liver function. Cyclopropane is very expensive but as only very small quantities are required to produce surgical anesthesia, the cost in individual cases is less than that of gas anesthesia

induced with the older agents and by the older methods. Considerable skill in the administration of the gas is necessary because of its great power, its rapidity of action, and the fact that drastic overdosage may take place in the presence of an abundant supply of oxygen. Recovery of consciousness is rapid. The chief fields for cyclopropane anesthesia are the following

1 Thoracic surgery. The high oxygen supply which can be administered is of value, especially when the patient's vital capacity is low. Quiet respiration and rapid recovery of the cough reflex are other advantageous features.

2 Respiratory obstruction. Because of its high oxygen supply and the relaxation of the jaw and larynx it produces, cyclopropane is one of the best anesthetics for intubation.

3 Marked anemia. The advantage of a high oxygen supply in this condition is obvious.

4 Cardiac cases. A high oxygen supply is of value especially when decompensation is present. Since high concentrations of cyclopropane have a deleterious effect on the heart muscle, care is necessary in their administration. However, when very deep anesthesia is not required the high oxygen supply, the quiet breathing, and the comparative lack of stimulation of the pulse and blood pressure more than compensate for the possibility of a deleterious effect.

5 States of debility and shock.
6 Short procedures requiring moderate relaxation.

7 Possibly in abdominal operations. The relaxation is superior to that afforded by nitrous oxide or ethylene, but less than that produced by spinal anesthesia.

8 As an adjuvant to other anesthetics. The authors present a tabulation of 184 cases in which they employed cyclopropane anesthesia. In 124 it was induced for thoracic operations. There were 7 deaths but none of them was attributable to the anesthetic. ARTHUR S W TOUROFF, M D

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Holmes, G. W., and Schatzki, R.: Examination of the Mucosal Relief as a Diagnostic Aid in Diseases of the Gastro-Intestinal Tract. *Am J Roentgenol* 1933, 34 143

The authors review the development of roentgen examination of the mucosal relief of the gastro-intestinal tract and discuss the field of application of the procedure. The principle of the method is the demonstration of differences in the relief of the inner surface of the gastro-intestinal tract by the use of a thin coating of contrast medium instead of merely studying the profile changes of the completely filled organ. Palpation plays an important rôle in the examination of the parts where it can be used. Roentgenoscopy is the basis of the method, but roentgenography preferably by "aimed" pictures, adds greatly to its value.

Three groups of lesions in which this method was used are discussed: (1) gastritis, (2) duodenal ulcer and (3) esophageal lesions.

In hypertrophic gastritis, the discovery of thickening, increased height and increased rigidity of the rugae justifies a presumptive diagnosis of the condition. Gastritis is characterized further by increased gastric secretion and small round areas of diminished density which are due to particles of mucus. The atrophic type cannot be diagnosed by roentgen examination because the normal stomach may show this rugae similar to those sometimes found in atrophy and normal rugae may be found in cases of complete atrophy of the mucosa. Rarely the ulcerative erosive form of gastritis may be revealed by multiple small ulcer flecks lying on the crests of the rugae.

Ulcer of the duodenum is especially suitable for this examination. In this condition the making of instantaneous roentgenograms with localized pressure under roentgenoscopic control is of particular value. Niches may be detected more frequently in this way than otherwise.

Demonstration of the inner relief of the esophagus is of value in inflammatory conditions which cause broadening of the rugae. Occasionally ulcers may be shown in this manner. The most important part of the relief diagnosis of the esophagus concerns the diagnosis of varices. The roentgen findings associated with these lesions are tortuous, net-like bands of decreased density frequently combined with widening of the lumen. Rarely is there narrowing or obstruction. Air bubbles may be mistaken for isolated varices, but re-examination protects against such an error. Multiple adhesions are usually recognized easily from the relief picture. With regard to the differentiation of varices from cancer the authors

emphasize the normal elasticity maintained in varices which may be evidenced by changes in shape with respiratory or cardiac movements.

In conclusion they state that although the relief method of examination is of great help in the diagnosis of gastro-intestinal diseases, the method of complete filling cannot be omitted as this procedure is necessary to determine the elasticity of the organs, to study the relationship of the different parts of the digestive tract to adjacent organs, and for many other purposes.

An extensive bibliography is appended.

ABRAHAM HARTMAN, M.D.

Langer, H.: Roentgen Therapy in Hyperplastic Blood Dyscrasias. A New Technique for Myeloid and Lymphatic Leukemia, Polycythemia Rubra Vera, and Hodgkin's Disease. *Am J Roentgenol* 1935 34 114

Langer reviews the literature on the various hyperplastic blood dyscrasias, citing seventy-four articles. The three most widely accepted theories as to the cause of leukemia attribute the condition respectively to infection, a neoplastic origin, and a hormone disturbance. Most roentgenologists treat the spleen, various bones, or areas containing the larger blood vessels. A frequent observation following such treatment is a favorable response of enlarged glands which receive no direct irradiation.

Since none of the theories fitted adequately to explain the results, the author directed his attention to the sympathetic nervous system. Believing that the hyperactivity of the leukopoietic system in the blood dyscrasias may be related to over-irritation of this system, he has treated a series of cases by roentgen irradiation over the centrum of the sympathetic nervous system and its ganglia.

The fields of irradiation include the centrum and the paravertebral ganglia. The centrum and upper cervical ganglia are approached through cervical and subtemporal fields and the other paravertebral ganglia through fields on either side of the spinous processes. The dosage used has varied as the procedure is new and requires still further study.

The author's observations were made in a series of seventeen cases of myelogenous leukemia, thirteen of lymphatic leukemia, three of polycythemia rubra vera, and twelve of Hodgkin's disease. With few exceptions, the effects on the blood were uniform. Of the twelve patients with Hodgkin's disease, two died, one eight months, and the other two months, after the roentgen treatment. In the cases of the other patients the irradiation resulted in a cure which has lasted in one case for five years, in one case for three years, in four cases for two years, and in three cases for one year.

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The author concludes that the results strongly support the assumption that hyperactivity of the leukopoietic tissues in the various blood dyscrasias is related to an over-irritation of the sympathetic nervous system

EARL E. BARTH, M.D

RADIUM

Laurence, G. C. *Intensity and Dosage Near Radium Needles* *Radiology*, 1935, 25: 166

The author discusses the intensity and dosage of irradiation close to radium needles on a purely physical basis. The first part of the article presents formulæ and tables for the classification of dosage at a point near a radium container and dosage charts for combinations of several needles. The second part deals with two units of gamma-ray dosage described in Part I, namely, the milligram hour per centimeter squared (mc.-hr.) and the roentgen (r).

The customary method of describing radium treatment is in milligram hours without further information is of little value. The author therefore discusses the disturbance produced in the tumor rather than the milligram hours necessary to produce it. The unit of quantity of irradiation called the "roentgen" is familiar to X-ray therapists. The milligram hour per centimeter squared is another method of describing dosage from radium. The dose at a point in the tissue is the number of roentgens or milligram hours per centimeter squared traversing the region of point during the irradiation. It is practical to select a number of the arrangements of radium needles which are most frequently used, determine the dose near them, and tabulate this information in convenient charts for ready reference in routine work. Such work has been done at the Radiumhemmet and elsewhere. However, the charts used by one institution are not always applicable to containers used in other institutions. This article gives formulæ and graphs from which it is possible to determine readily the dose at typical points near any needle with sufficient accuracy for therapeutic purposes. Useful dosage charts for any combination of needles may be prepared in a few hours. The author presents a formula including all the necessary factors for determining the irradiation traversing a given point from a source of irradiation which is commonly used, namely, a radium needle with a radium-bearing portion 3.0 cm

long. The formula is rather complicated, but the methods of arriving at each of the factors—the quantity of radium element in the needle at the time of exposure, the length of the cavity containing the radium, the effective thickness of the filter, the absorption constant of the material comprising the wall, and the distances in the various planes—is described. As an example, the author cites the use of a 10-mgm needle applied for ten hours and the determination of the dose at a point 0.7 cm from the axis and 3.0 cm from the central plane. Typical preparations of 5, 10, 14, and 22 needles in a single plane 1.0 cm apart have been checked and the curves and charts of the dosage at typical points expressed in roentgens per hour and milligram hours per centimeter squared. The figures and charts are numbered, one in Arabic and one in Roman, so that the table can be readily interpreted from corresponding illustrative figures. A 10-mgm radium container with a platinum-iridium wall 0.5 mm thick and an effective length of 3.0 cm is the standard used in the preparation of the charts. The filter is sufficient to remove all of the beta irradiation and softer irradiation of the gamma-ray type. The technical details regarding the secondary rays in the ionization chamber are described in detail and the work checked by actual measurements. The relationship between the r unit and the mc.-hr unit is expressed as an average of the author's findings and those of other radiologists. The mean value of 8.6 r per mc.-hr has been adopted.

There are several assumptions which greatly simplify the mathematics of this work. It is stated that the possible error in these various assumptions is less than that which would be of real significance in actual therapy. In general, the findings expressed in tables and charts do not apply to distances less than 0.5 cm or greater than 10 cm nor to certain other points near the end of the needles at angles of less than 15 degrees.

In preparing the figures, tables, and charts typical points are selected in the plane of the radium below which points measurements are calculated. By an ingenious arrangement of points the number of calculations is reduced to 36. The effort is made to simplify the calculation of the dose near radium needles by avoiding attempts to attain an accuracy considerably greater than that required in radiological practice.

A. JAMES LARKIN, M.D

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Roome, M. W., and Wilson, H.: Experimental Shock: The Effects of Extracts from Traumatized Limbs on the Blood Pressure. *Arch Surg* 935 3 16

In experiments on dogs in which the authors severely traumatized a leg, ligated it, amputated it immediately after the ligation, extracted fluid from it by means of a hydraulic press with high pressure and injected the fluid thus obtained into other dogs, the fluid caused sudden death due to clotting of the blood in the heart and pulmonary arteries or pulmonary fat embolism. As the fat embolism was attributed to small particles of muscle tissue and fat globules in the fluid a second series of similar experiments were carried out with fluid from which the fatty material and muscle particles were removed by centrifugation. In these experiments there was no significant fall in the blood pressure. The authors therefore conclude that no extract could be obtained from the tissues of the traumatized limb which, on injection into a second animal, would cause traumatic shock. G. DANIEL DELPLAT M.D.

Lombard, P.: Chronic Edemas (Les œdèmes chroniques). *Rev d'orthop* 935 4 240

The infiltration of the connective tissue by fluid coming in abnormal amounts from the capillaries may produce uniform swelling of the part involved without much tissue reaction. The tissue spaces are merely widely separated, being filled with clear watery fluid. Under different circumstances there may be a great deal of tissue reaction involving skin, subcutaneous connective tissue and muscles, and sometimes even bones and joints.

Chronic edemas may be classified as follows:

1. Edema caused by vasomotor disturbance induced by hormones (thyroid). In hypothyroidism the edema is usually generalized but sometimes local. The skin is hard, resistant, and pale.

2. Edema due to disease of the central nervous system. This is occasionally associated with encephalitis, hemiplegia, and cord injury.

3. Edema caused by direct mechanical action on the vascular walls.

a. Edema due to constriction. This is a very common type and is often seen below scars caused by wounds, burns, or amputated hands.

b. Edema having an arterial origin. This usually comes on a few hours after an injury, causing a painful, permanent swelling with rapid loss of function. If a fracture is present there is no rarefaction of bone and healing progresses normally. Pterial arterial sympathectomy may be necessary for cure.

c. Edema of venous origin. This may accompany phlebitis or varices. The edema is hard and the extremity has a red or cyanotic tinge.

4. Edema of lymphatic origin. Obstruction to the flow of lymph may be due to massive emboli composed of neoplastic cells, to inflammation in surrounding areas, or to diffuse lymphangiomatosis. It is often associated also with lesions of the venous system.

5. Inflammatory edema. This is a frequent type. It may be produced artificially as in Bier's hyperemia to increase resistance to infection.

Edema may appear in the course of chronic inflammatory lesions such as leprosy, tuberculosis, syphilis, and chronic ulcers.

Certain organisms such as the streptococcus and their toxins produce edemas of a characteristic type in which the exudate is rich in fibrin. These types of edema are referred to as elephantiasis or elephantiasis-like conditions. The author states that some doubt is now being thrown on the rôle of filaria bancrofti in the production of tropical elephantiasis.

6. Edemas of unknown origin.

a. Hereditary edema (Milroy's disease, the trophic edema of Milroy). The swelling may involve one or both legs, portions of the limbs. It rarely involves the arms. It is usually a familial condition and may be present at birth. It may become worse at puberty or make its first appearance at that time. Its pathogenesis is obscure.

b. Edema appearing suddenly without apparent cause.

The surgical treatment of chronic edema varies according to the cause of the condition. Pterial arterial sympathectomy is done in the traumatic or arterial types and resection of sinus in the venous types. For the lymphatic type various operations have been tried. In the infectious type, the patient must be prepared carefully before operation.

ALAN W. POOLE, M.D.

Barnett, B.: The Hemostatic Use of Snake Venom. *Proc Roy Soc Med Lond* 935, 28 460

In a preliminary report in 1934, Macfarlane and the author published the results of an investigation of the possibility of using certain snake venoms as local hemostatics, particularly in hemophilic hemorrhage. In experiments with the venom of Russell's viper they found that very high dilutions of blood, both hemophilic and normal, more rapidly than any other hemostatic known to them.

This report deals with the use of the same venoms in the treatment of severe hemophilias and one patient with purpura hemorrhagica. Hemorrhage from various sources was easily controlled by application of the venom. In all of these cases coagula

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tion was rapidly produced and the clot formed was as firm and elastic as that of normal blood. The venom was used in a strength of 1 to 10,000. No toxic reactions were observed. JACOB M. MORA, M.D.

Gage, M. Pilonidal Sinus. An Explanation of Its Embryological Development. *Arch Surg*, 1935, 31: 175.

Pilonidal sinus was apparently first described by Warren in 1867. The terms "pilonidal cyst" and "pilonidal sinus" should be limited to lesions having their origin in the medullary canal. They should not be used to designate the simple coccygeal dimples.

The author studied the development of the caudal end of the embryo with special reference to the development of the integument, its appendages, and the nervous system, and correlated his findings with those of clinical, pathological, and histological studies made in cases of pilonidal sinus. He concludes that pilonidal sinus results from an anomalous development of the caudal end of the medullary canal, whereas coccygeal dimple results from dis-turbances in the development of the sacrococcygeal region into the following four groups.

Group 1. In this group are included all cases of sacrococcygeal dimple. This anomaly is the simplest both embryologically and clinically. The cyst or sinus is superficial, and the tract does not penetrate to the periosteum of the sacrum or coccyx.

Group 2. In this group are included cases of true pilonidal sinus. The sinus usually extends for varying depths from the skin. It may be situated just beneath the skin or extend down to the periosteum of the sacrum or coccyx. It may have a bulbous dilatation at either end, just beneath the skin, or near the periosteum of the sacrum.

Group 3. In this group are included cases in which the sinus extends down between the sacrum and coccyx or enters the sacral canal for varying distances, sometimes extending to the dura at the level of the second sacral vertebra. The site of the cutaneous opening of the sinus varies in position, but corresponds to the closure defects of the bony covering of the sacral vertebrae.

Group 4. In this group, the least common, are the cases in which the sinus is complete and communicates with the spinal cord. Cerebrospinal fluid but are usually very small.

Illustrative cases are presented briefly. A comprehensive bibliography is appended to the article. ARTHUR S. W. TOUROFF, M.D.

Pillsbury, D. M., and Kulchar, G. V. The Relation of Experimental Skin Infection to Carbohydrate Metabolism. The Effect of Hypertonic Glucose and Sodium Chloride Solutions Injected Intraperitoneally. *Am J Vet Sc*, 1935, 190: 169.

The experiments reported were performed on rabbits with an experimentally produced staphylococcal

infection of the skin. The intraperitoneal injection of glucose at intervals of twelve hours in a dose of 7.5 gm per kilogram of body weight for a period of six days had no effect on the skin infection, but when the dose was increased to a total of 15 gm per kilogram of body weight in twenty-four hours, a very marked increase in the extent of the infection was noted within twenty-four hours. A similar effect was observed following the injection of sodium chloride solution of the same toxicity. The authors state that drastic conditions must be produced before the skin infection is influenced markedly. It is obvious that experiments involving frequent injections of a hypertonic solution are drastic and unphysiological. All of the animals receiving hypertonic glucose or sodium chloride solution at frequent intervals eventually showed some evidence of toxicity.

WALTER H. NADLER, M.D.
Bonola, A., and Perricone, F. A Clinicostatistical Study of 1,950 Cases of Poliomyelitis (Considerazioni clinico-statistiche su 1,950 casi di poliomielite). *Chir d organi di movimento*, 1935, 21: 65.

This report is from the Rizzoli Institute, Bologna, where patients with the sequelae of poliomyelitis constitute 6.8 per cent of all patients admitted for orthopedic treatment. The 1,950 patients whose cases are reviewed were observed in the period from 1899 to 1932. More detailed information is given for the 1,109 patients observed in the period from 1919 to 1932 than for those observed previous to 1919. The cases were grouped for study according to the muscles affected, the types, frequency, and distribution of the paralyzes, and the segments of the spinal cord involved.

One thousand and fifty (53.9 per cent) of the patients were males.

The number of patients admitted each year is shown in a table. The number was highest in 1925.

The ages at which the treatment was begun are shown in a table. Fifty-eight per cent of the patients were first treated between the ages of two and ten years. Of this group, the greatest number (85 per cent) were six years old. All ages up to sixty years were represented.

The regional distribution of the cases in Italy as a whole and in Bologna is shown by charts. In 16.3 per cent of the cases no history of fever was given.

In 42.2 per cent, the condition developed in the first year of life, in 31 per cent, in the second year, and in 13.8 per cent, in the third year.

Of 8,852 muscle groups involved, 523 (5.8 per cent) were in the lower extremity, 91 (0.95 per cent) in the upper extremity, 91 (0.95 per cent) in the trunk, and 2 (0.02 per cent) in the face. The left side was affected in 40.9 per cent of the cases and the right side in 59.1 per cent.

The parts of the spinal cord involved are shown in a chart. The localization was most frequently

in the humeral and cervicothoracic segments. The reason for this is not known. It is believed that there is a definite relationship between the inflammatory process and the vascular topography. It is possible that the large number of anterior horn cells in these parts are more vulnerable to the virus because of changes in their metabolism associated with their greater activity.

The types and degrees of the paralysis in the various groups of muscles are discussed in detail.

A LOUIS ROY, M.D.

Miebin, J., and Pourbois, Y: Barium in Anti-Cancer Therapy. A Clinical and Experimental Study (Le baryum en thérapeutique anti-cancéreuse: étude expérimentale et clinique). *Rev. belge d'onc.* 1935 7: 437.

The metals play an important rôle in normal metabolism and many affections are based on a defect in the metabolism of a metal. The effect of metals on cancer has therefore been studied. Certain metals such as potassium and arsenic have been found to activate the growth of tumors. The authors have demonstrated that sodium, thorium, and uranium activate cancer in animals. Copper and magnesium were found to cause a slight inhibition of the growth of cancer in mice. This observation was confirmed by Kreyberg. In the authors' studies of metals of the third group of the periodic system, cadmium, strontium, and barium, the most marked effects were produced by barium.

Barium is quite toxic to animals. There is an antagonism between the various bivalent metallic ions. When barium is administered, signs of calcium deficiency appear. In experiments on guinea pigs the output of calcium in the urine was determined before and after injections of barium salts. The administration of a minute amount of the salts produced an increase in the excretion of urinary calcium which was considerably more than could be accounted for by simple ionic substitution.

In studies in mice the authors found that, in suitable doses, barium has an inhibiting effect on cancer. The dose is always considerably less than the toxic dose. The activity varies with the salt since the chloride in one dose may activate a tumor while the same dose of saccharate may inactivate it. In most of the authors' studies the gluconate or saccharate was used as the dose of these salts is most convenient. The anti-cancerous action is due to inhibition of the oxidation of lactic acid into glycogen. On the normal cell respiration the barium salts have no effect. In cancer cells, strong doses of barium salts inhibit respiration and small doses accelerate it. These results appear to agree with the authors' findings in mice which show that similar small doses inhibit the growth and incidence of cancer in mice and larger doses accelerate it. In a study of the dose of the various barium salts the authors found that the dose of the highly ionizable chloride must be much less than that of the gluconate or saccharate. The separate ions themselves were without effect.

The dose of barium chloride was 1 drop of a 1:10,000 solution three times a week. It was as effective when given by mouth as when given by injection. When calcium was administered with the barium, doses which formerly stimulated the tumors caused inhibition. The solution of saccharate of barium must be preserved with a minute amount of silver salt to prevent the growth of fungi.

In their clinical work the authors studied the effects of barium on cutaneous cancer and advanced malignant disease in cases in which other therapy was contra-indicated or not permitted. In addition, in all cases in which roentgen therapy was used they gave barium as an adjunct to the irradiation. Fifteen patients with carcinoma of the skin were given 10 drops of a 1:10,000 solution of barium saccharate daily. To date, their lesions have remained healed for from one to three years. The effect of barium is less satisfactory on carcinomas of the basal-cell types than on carcinomas of other types. In cases of advanced carcinoma of the rectum and carcinoma of the nasopharynx the authors gave barium saccharate in a dose of 5 drops of a 1:10,000 solution every two days. They found that in some cases it had a remarkably beneficial effect. While they have supplemented radiotherapy with barium therapy only during the last three years, they believe that the results of irradiation are improved by barium therapy. Their results as compared with those of Coillard are better for two- and three-year periods. They recommend that calcium be given during the barium therapy.

KENNETH W. THOMPSON, M.D.

DUCTLESS GLANDS

Coombs, H. C., Pike, F. H., and Scarfe, D. S.: The Relation of Contracture and Tetany to Experimentally Produced Calcium Deficiency in Cats With and Without Lesions of the Cortical Motor Areas. *Endocrinology* 1935, 6: 43.

In a previous series of experiments the authors noted that animals which had received sodium bromide daily before or after thyroparathyroidectomy or during both periods did not show the same fall of ionized calcium or the same decrease in the calcium-phosphorus ratio in the same period of time as animals which were not treated with the bromide. Moreover they survived longer than the latter without the appearance of tetany. The theories suggested to explain the mechanism of the protective action of the bromide were (1) that the bromide ion had a specific effect on the calcium and phosphorus metabolism apart from its action on the central nervous system, and (2) that the protective action was due to the general reduction in the motor or other activity of the central nervous system caused by the bromide.

It appeared possible to test these two theories by producing an experimental lesion of the central nervous system which would reduce greatly the general motor activity of the animal. If animals

with such lesions lived longer, showed a less rapid change of ionized calcium and inorganic phosphorus, and were more free from tetany than the control animals after thyroparathyroidectomy, the results would apparently support the second theory. On the other hand, the absence of an effect on the general deportment of the animals would apparently constitute evidence of a specific effect of the bromide ion on calcium and phosphorus metabolism.

Experiments performed on cats indicated that the rate of fall in the concentration of the ionized calcium and inorganic phosphorus of the blood after thyroparathyroidectomy is related to the general activity of the central nervous system.

The author's conclusions are summarized as follows:

1. An injury of the central nervous system, such as bilateral ablation of the cortical motor region, which reduces general motor activity after thyroparathyroidectomy (a) prolongs life, (b) defers significantly the onset of tetany, (c) slows the decrease in the concentration of ionized calcium in the blood, (d) has a less uniform effect on the concentration of inorganic phosphorus, and (e) defers the general change in the physiological condition of the rectus abdominis muscle as measured by its working power, the total time during which contraction is maintained, and the appearance of contracture.

2. The results suggest, although they do not completely prove, that the general metabolism of the striated musculature is a factor concerned in the

genesis of the train of events following parathyroidectomy. It seems possible that the time of appearance of the various symptoms varies inversely as the speed of metabolic processes in the muscle.

ARTHUR S. W. TOUROFF, M. D.

EXPERIMENTAL SURGERY

Fine, J., Frehling, S., and Starr, A. Experimental Observations on the Effect of 95 Per Cent Oxygen on the Absorption of Air from the Body Tissues. *J. Thoracic Surg.*, 1935, 4, 635.

The absorption of nitrogen from the body tissues can be accelerated by the inhalation of 95 per cent oxygen. The authors report experimental observations demonstrating that this is true for room air injected into the soft tissues and the peritoneal cavity of the rabbit. Previous studies showed that it is true also in gaseous distention of the intestine in man and animals.

The authors are at present engaged in a study of the effect of the administration of 95 per cent oxygen to relieve the symptoms following encephalography. Preliminary observations strongly indicate that it will prove effective. As the principle involved should be applicable to the acceleration of the absorption of air in any body tissue, the authors suggest that the inhalation of oxygen might be considered in the field of thoracic surgery when the problem of the absorption of encapsulated air arises.

J. THORNWELL WITHERSPOON, M. D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THE ISSUE IN WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

Gonorrhoic wound of the head and osteomyelitis of the skull F C GRAY *Ann Surg* 1915 102 473

An observation on the treatment of osteomyelitis of the skull, with the report of cases C H SARRIS *Laryngoscope* 1915, 45, 703

Hypertonus frontalis internus preliminary study S MOORE *Surg Gynec & Obst* 1915, 61, 345

Intradiploic epidermoid (cholesteatoma) of the skull P C BRY *Arch Surg* 1915, 5, 100 [22]

The diploic vein F SOTOS *Arch (Illa Chile)* 1915, 18, 169

Thrombophlebitis of the cavernous sinus due to total fist J ANDERSON *Rev med & Quim* 1915, 15, 644

A new technique for the operative treatment of traumatic salivary cyst of the cheek S P MINDELMAN *Rev de Chir Roumain* 1914, 31, 7-1

Three cases of carcinoma of the face: a case report D J KROTT *J Med Cincinnati* 1915, 10, 134

The clinical basis for total anasthesia of the face, jaw and mouth A LEBENAU *Deutsche Zahn- u. Mundheilk* 1915, 2, 400

Sarcomatous granuloma of the jaw O ATRIAN *Deutsche Zahn- u. Mundheilk* 1915, 2, 400

A nevus choroid pecten due to salivary duct in the sublingual gland J HARTVICK *Deutsche Zahnärztliche Wochenschr* 1915, p 383

Eye

Progress in ophthalmology The ocular manifestations of blood diseases T O CONTON *Internat Clin* 1915, 5, 5

Progress in ophthalmology Diabetes mellitus, its ocular manifestations F M RUSSEL *Internat Clin* 1915, 5, 506

A study of the central and peripheral light and dark adaptations with varying backgrounds R FURCHARD *Brit J Ophthalm* 1915, 9, 47

A working system for tonometers A FOWLER *Arch Ophthalm* 1915, 4, 411

Curves of the refraction of the human eye S DEHAEN *Rev Arch Ophthalm* 1915, 4, 4

Changes of the refraction in children with convergent strabismus F A VOISSEY *Am J Ophthalm* 1915, 8, 800

Convergent accommodation and pupil contraction G FARRALL *Med J Australia* 1915, 4, 4

Full correction of vision in children the progress of myopia? D M ROBERT *Arch Ophthalm* 1915, 4, 404

An analysis of fifty cases of tobacco-alcohol amblyopia F D CARROLL *Arch Ophthalm* 1915, 4, 4

Light as long classes C BIRNBAUM and W HATSON *Am J Ophthalm* 1915, 8, 245

Prophylaxis for the schooling of the blind and partially blind E M VAN CLEVE *Arch Ophthalm* 1915, 14, 473

A case of unilateral anophthalmos with cycl K KATTA *Brit J Ophthalm* 1915, 10, 5-8

Erythema in the eyeball W B. CLIFORD *Med J Australia* 1915, 4, 4-5

Endophthalmitis phlogogenica B CONWAY *Illness M J* 1915, 63, 245

Streptococci in inflammation of the eye H C KURT *Am J Ophthalm* 1915, 18, 305

Ophthalmomyiasis W B ANDERSON *Am J Ophthalm* 1915, 18, 400 [22]

Blepharochelasia R W GARTNER *Am J Ophthalm* 1915, 18, 81

Parinaud's syndrome L F BARBER *Am J Ophthalm* 1915, 18, 327

The oological significance of the elementary body in trachoma P TAYLORSON F J PROCTOR and P RICHARDS *Am J Ophthalm* 1915, 18, 8-1

The surgical treatment of trachoma O VON CHOLNAR *Rev Assoc med Argent* 1915, 40, 800

The proper treatment of concomitant convergent strabismus L J CHANCE *J Michigan State M Soc* 1915, 34, 343

Sealy degree convergent strabismus corrected with operation R J HUTHINGS *Kentucky M J* 1915, 31, 410

Paralysis of associated horizontal movements of the eyes in the post-encephalitic syndrome R OLLAND *Science* 1915, 48, 49

Paralysis of the external rectus muscle An inquiry into postoperative iridectomy of lateral movement H L BRY *Waller Med J Australia* 1915, 3, 5

Tendon transplantation in ocular muscle paralysis R O'CONNOR *Am J Ophthalm* 1915, 8, 8-9

What the slit lamp shows K von der HART *Illness M J* 1915, 63, 3

Keratocystoconjunctivitis Report of case J S CONNOR and E B B. KERR *Arch Ophthalm* 1915, 14, 435

Pharyngeal operation J O McKEEVER *South M J* 1915, 48, 8-1

Lentic type of corneal dystrophy T M SAMPSON *Arch Ophthalm* 1915, 4, 397

Harlequin ophthalmic lesions H P DAVENPORT *Arch Ophthalm* 1915, 4, 454

Cataract symposium O B ALGER *Illness M J* 1915, 63, 930

Acute cataracts presumably due to diabetophthalmos by B F GAWWACK *J Michigan State M Soc* 1915, 34, 333

Late traumatic senile cataract L LUTZ *Arch Ophthalm* 1915, 4, 397 [22]

Lightning and electric cataract J A CONWELL *Prosyphanta M J* 1915, 18, 930

Grade cataract W A FARRER *Illness M J* 1915, 63, 38

BIBLIOGRAPHY OF CURRENT LITERATURE

- Cataract incision, iridectomy, and iridotomy F W
BRODRICK Illinois M J, 1935, 68 235
Modern refinements in cataract extraction R K
DAILY Texas State J M, 1935, 31 330
Preparation and anesthesia for cataract J L Mc-
STEVENSON Illinois M J, 1935, 68 233
Intracapsular extraction of senile cataract W
COOL and C A DICKEY California & West. Med., 1935,
43 200
A comparison of intracapsular methods for the extrac-
tion of cataracts I HARTSHORNE Am J Ophth, 1935,
18 835
Extracapsular extraction of lens H WOODRUFF Illi-
nois M J, 1935, 68 242
The Elschnig technique for lens extraction H GRADLE
Illinois M J, 1935, 68 240
The prevention of complications in cataract operation
S R GIFFORD Illinois M J, 1935, 68 243
Primary sarcoma of the choroid, early diagnosis and the
enucleation of an eye with normal vision L LIJO PAVIA
Rev méd Lat-Am, 1935, 20 988
The vitreous body and glaucoma SIR S DUKE-ELDER
and H DAVSON Brit. J Ophth, 1935, 19 433 [34]
Retinoscopy at a definite distance J D WEINTRAUB
Arch Ophth, 1935, 14 458
Preretinal artery H F WHALMAN Arch Ophth, 1935,
14 481
Transillumination of the sclera as the perfect method of
localization for the tear, and the treatment of retinal de-
tachment. J LIJO PAVIO Semana méd, 1935, 42 554.
Recent advances in the treatment of spontaneous retinal
detachment with improved surgical prognosis G H
STINE Colorado Med., 1935, 32 708
The surgical treatment of detachment of the retina R
F PEREIRA Rev Asoc. med argent, 1935, 49 877
Angioid streaks of the retina associated with pseudo-
xanthoma elasticum A. HILDING Minnesota Med, 1935,
18 599
Cervical sympathectomy in retinitis pigmentosa, pre-
liminary report on results G DE TAKÁTS and S R GIFF-
ORD Arch Ophth, 1935, 14 441
The etiology of retrobulbar neuritis J H DONNIN-
TON Laryngoscope, 1935, 45 685
Nitrocellulose of low viscosity used as an embedding
medium for eyes that are to be sectioned W E FRY
Arch Ophth, 1935, 14 482
- for low tones? Is impaired hearing for the tones below 1000
D V ever due to a cochlear or inner-ear lesion, if so, where
is the lesion located and how is it recognized clinically?
S J CROWE and others Ann Otol, Rhinol, & Laryngol,
1935, 44 736
The treatment of otosclerotic and similar types of deaf-
ness by the local application of thyroxin. A A GRAY
Proc Roy Soc Med, Lond, 1935, 28 1447
Herpes zoster oticus, with a report of two cases H
HASTINGS Ann Otol, Rhinol, & Laryngol, 1935, 44 809
Absorption from the middle ear E L ROSS and R W
RAWSON Arch Otolaryngol., 1935, 22 312
Otitis media, its management. R STAHR J Iowa State
M Soc, 1935, 25 475
Otitic meningitis—pseudo brain abscess M RABBIER.
Laryngoscope, 1935, 45 676
Forty-two cases of cancer of the external ear R PEY-
CELON and A MOREL. Rev de chir, Par, 1935, 54 547 [35]
Acute suppurative disease involving the petrous pyra-
mid S S QUITNER and S W GROSS Laryngoscope,
1935, 45 670
Reinfection of the wound following mastoidectomy A
detailed report of a case previously published A A
SCHWARTZ Arch. Otolaryngol, 1935, 22 325
- ## Nose and Sinuses
- The correction of saddle nose G D WOLF Arch Oto-
laryngol, 1935, 22 304.
Tip of the nose completely sectioned, and sutured three
hours after the accident, cure. J N ROY Ann Otol,
Rhinol & Laryngol, 1935, 44 893
A study of nasal infections. J N FISHER Rhode
Island M J, 1935, 18 129
Polypi of the nasal septum N B BRANDENBURG Arch
Otolaryngol, 1935, 22 328
Polypi of the nasal septum R. D RUSSELL. Laryngo-
scope, 1935 45 698
True papilloma of the nasal cavity R. KRAMER and
M L SOX. Arch Otolaryngol, 1935, 22 22 [35]
A nasal suction tube D H ANTHONY Arch. Oto-
laryngol, 1935, 22 334.
A new naso-anthrostomy forceps A S ALEXANDER
Arch Otolaryngol., 1935, 22 334
The use of free metallic silver in the nose. L S POWELL.
Ann Otol, Rhinol & Laryngol, 1935, 44 734
The present status of the submucous and turbinate oper-
ation. W M HUNT Laryngoscope, 1935, 45 692
Ovarian therapy in nose and throat surgery E S
CONNELL J Missouri State M Ass, 1935, 32 372
The use of sclerosing solution in the cure of chronic
sinuses M W SHERWOOD Texas State J M, 1935, 31
347
Osteoma of the nasal accessory sinuses T E CARMODY
Ann Otol, Rhinol & Laryngol. 1935, 44 626
Mucocoele of the frontal sinus causing phenomena of
cerebral compression O F MAZZINI and M CESIO Bol
Soc de chirug de Buenos Aires, 1935, 19 640
External fronto ethmoidal operation O R KLINE
J Med Soc New Jersey, 1935, 32 545
Odontogenic complications in the maxillary sinus A
IMMENTKAMP Deutsche zahnärztliche Wochenschr, 1935, p
621
A case of sarcoma of the antrum complicated by preg-
nancy treated by irradiation I KEAN Radiology, 1935,
25 321
A constructive critical analysis of maxillary sinus sur-
gery E T ZIEGELMAN Surg Gynec & Obst., 1935, 61
388
- ## Ear
- Progress in otolaryngology A review of radiology and
roentgenology as applied to otolaryngological practice
W W EAGLE Internat Clin, 1935, 3 286
The origins of hearing—random variation or convergent
evolution—a study of the auditory organ and its swim-
bladder connections in fishes H M EVANS J Laryngol
& Otol, 1935, 50 649
Investigation on bone conduction in the animal and in
the human J R LINDSAY and H B PERLMAN Laryngo-
scope, 1935, 45 657
An analysis of over 4,000 cases of educational deafness
studied during the past twenty-five years. M YEARSLEY
Brit J Child Dis, 1935, 32 196
Recent advances in the electrophysiology of hearing
C S HALLPIKE J Laryngol & Otol 1935, 50 672
The value of the reflex contraction of the muscles of the
middle ear as an indicator of hearing H KOBRACK, J R
LINDSAY, and H B PERLMAN Arch Otolaryngol 1935
21 663 [34]
Symposium before the American Otological Society
Toronto, May 27, 1935 Is there localization in the cochlea

Mouth

- Irradiation in carcinoma of the lip. I. I. KAPLAN and S. KRAVITZ. *Am J Roentgenol* 1935, 34, 581.
- A rare ameloblastoma. W. RICHARDS. *Brit J Clin Chir* 1935, 32, 1.
- Chronic hypertrophy of the tongue and tonsils and its surgical treatment. A. POTCHENKOV. *Vestn Khir* 1935, 37, 99.
- Syphilitic granoma of the tongue. A. BIGATSI. *Rev Assoc med argent* 1935, 40, 810.
- Fatty tumor of the tongue. H. H. FRIEDMAN. 1935. Erlangen, Dissertation.
- Two cases of rhabdomyosarcoma of the tongue. H. PARKESHA and J. MURRAY DE ALMEIDA. *Arquivo de pedol* 1934, 6, 582. [24]

Pharynx

- The treatment of pharyngeal diverticula by the combined one-stage closed method. T. A. SWALLOW. *Pennsylvania M J* 1935, 38, 946.
- Chronic tonsillitis and the thyroid. L. ZONZIN. *Acta oto-laryngol* 1935, 21, 66.
- The technique of tonsillectomy. R. J. SCHWAB. *Arch Otolaryngol* 1935, 627.
- Subcutaneous emphysema following tonsillectomy. A report of two cases. F. B. MACCORMACK. *Arch Otolaryngol* 1935, 33.
- Ligation of the external carotid artery to control tonsillar hemorrhage. A. W. PARKER. *Med J Australia*, 1935, 2, 414.

Neck

- The differential diagnosis of enlargement of the lymph glands of the neck. R. F. FARGHAM. *Ann Otol Rhinol & Laryngol* 1935, 44, 663.
- Tonsillar cysts of the neck. D. BRACCHETTO-BRIAN and B. CALICANO. *Bolet y trab Soc de ciruj de Buenos Aires*, 1935, 9, 377.
- Tonsillar cysts in the neck. PAVLOVICH and ZORRAGOV. *Bolet y trab Soc de ciruj de Buenos Aires*, 1935, 9, 570.
- Branchial and thyroglossal duct cysts and fistulas. J. M. BROWN. *Ann Otol Rhinol & Laryngol* 1935, 44, 644.
- Tracheostomy during and following extensive operations on the neck and chest. W. CASTELL. *Schweiz med Wochenschr* 1935, 58.
- The anterior pituitary iodine, and the thyroid gland. A. LOEBER and K. W. THOMSON. *Internat Clin* 1935, 3, 149.
- A comparison of basal metabolic rates obtained by gas volumetric analyses and formulae. T. J. F. FRANK. *Med J Australia*, 1935, 307.
- The pituitary in experimental cretinism. I. Structural changes in the pituitaries of thyrotoxic-treated rats. I. T. ZIEGLER, L. W. D. VITON, T. R. KELLER, and C. S. LEVY. *Conn. H. Am J M Sc* 1935, 90, 143. [86]
- The effect of tracheal occlusion on the hypertrophy of thyroid transplants and remnants. E. W. WORKMAN and G. L. MILLER. *Brit J Surg* 1935, 3, 4. [36]
- The reduction of the mortality in hyperthyroidism. F. H. LAUREY. *New England J Med* 1935, 13, 475.
- Chronic thyroiditis. R. K. GILCHRIST. *Arch Surg* 1935, 3, 430.
- A chemical, morphological, and functional study of goiter. BRAVACALANA and BOERSTER. *Chir chur* 1935, 700.
- Goiter. A clinical analysis with a report of unusual cases. M. S. ROTH. *West J Surg (Obst & Gynec)* 1935, 43, 305.
- A chondro-pathological and experimental study of the functional structural relationship of goiter. J. RABINOVITZ, J. R. FRANKOV, and H. W. LORRA. *Endocrinology* 1935, 9, 583.

- The etiology of nodular goiter. J. BERNHARDT and S. SCHWARTZ. *Brit J Clin Chir* 1935, 32, 433.
- The chemical aspects of struma lymphomatosa (Histiocytosis). H. M. CLARKE, E. B. ECKHARDT, and S. W. LARRY. *Arch Surg* 1935, 3, 40.
- The iodine and post iodine days. A review of 37,228 cases of goiter. I. the Mayo Clinic. C. H. MAYO and C. W. MAYO. *West J Surg, Obst & Gynec* 1935, 43, 477.
- The impedance angle test for thyrotoxicosis. II. The application of the impedance angle in the diagnosis of thyroid disease. M. A. B. BRADLEY. *West J Surg Obst & Gynec* 1935, 43, 514.
- Toxic adenoma of the thyroid gland with associated hypothyroidism. H. H. BEARDS. *West J Surg Obst & Gynec* 1935, 43, 483.
- Encephalomalacia of Basedow's disease, its physiological and pathological determination. L. JOHANN-BRANDER. *Bruders-bld* 1935, 3, 1711.
- Quantitative observations on the effect of iodine in exophthalmic goiter in Chicago. W. O. THOMSON, S. O. TAYLOR, III, P. K. THOMPSON, and L. F. N. DICKER. *West J Surg Obst & Gynec* 1935, 43, 450.
- Malignant goiter. A survey of geographical types. R. WARD. *West J Surg, Obst & Gynec* 1935, 43, 494.
- The surgery of malignant goiter. F. de QUERVAIN. *Bruders-bld* 1935, 3, 204.
- Cystadenoma papiferorum glandulae thyroideae and reticular sarcoma on the left side of the neck. KONTAKIS. *Zentralbl f Chir* 1935, p. 836.
- Connection for postoperative reactions following thyroidectomy. C. LAZA. *Zentralbl f Chir* 1935, p. 1080.
- E. showing the results of total thyroidectomy in cardiac disturbances. A. HERTZNER. *Am J Surg* 1935, 30, 311.
- The surgery of subtotal parathyroidectomy. O. COPE. *New England J Med* 1935, 313, 470.
- The technique and uses of suspension laryngoscopy. F. E. LEITCH. *South M J* 1935, 28, 858.
- Tracheostomy for the relief of laryngeal obstruction occurring in children. H. L. KELLER. *Arch Otolaryngol*, 1935, 32, 317.
- Paralysis of the larynx. A suggested explanation of the so-called contracted median position of the vocal cords in bilateral paralysis. A consideration of Swenson's law. C. J. LUDWIGSON. *Ann Otol Rhinol & Laryngol* 1935, 44, 720.
- Symptomatic treatment and cure of palatal dysplasia due to tuberculous laryngitis by electric cauterization. LAURENT LAVASTINE and ROSENTHAL. *Bull et mèm. Soc. med d'hop de Par* 1935, 51, 1779.
- Observation of the cartilages of the larynx and its relationship to some types of laryngeal disease. H. M. TAYLOR. *Ann Otol Rhinol & Laryngol* 1935, 44, 6.
- A chondroma of the larynx. R. HERRMANN. *J Laryngol & Otol* 1935, 50, 668.
- Laryngeal granuloma following intratracheal intubation. R. B. GOULD. *Brit M J* 1935, 409.
- Clinical and anatomopathological studies of laryngeal cancer in the aged. PORTMAN, MOONSHAU and BARRETT. *Presse méd Par* 1935, 43, 60.
- The evaluation of the roentgen treatment of laryngeal carcinoma: report of cases. I. S. HIRSCH and S. M. BAUER. *Radiology* 1935, 44, 28. [32]
- The surgical treatment of carcinoma of the larynx. Z. de LEBLANC. *Acta oto-laryngol* 1935, 21.
- Primary results of telereöntgen treatment in cancer of the larynx and hypopharynx. I. the Radiological Clinic of the University of Lund, 1935. 1935. L. LÖNNER. *Radiology* 1935, 3, 307.

SURGERY OF THE THORAX

Chest Wall and Breast

- The functional activity of the breast following plastic operations. E. KAZAR. *Zentralbl f. Chir.* 1935, p. 933.
- The bleeding breast. A. MOURT. *Chir. chir.* 1935, 11, 502.
- Bleeding from the nipple in association with chronic cystic mastitis. J. KOWALCZYK. *Chir. klin.* 1934, 3, 16.
- The treatment of mastitis. M. R. SOLARI. *Scienze med.* 1935, 42, 36.
- Statistical study of cancer of the breast in the male. F. GOTTU, J. THOROSO, and M. THOROSO. *Arquivo de patol.* 1934, 6, 337.
- Carcinoma of the breast in case of homologous twin sisters. I. I. KAPLAN. *Am. J. M. Sc.* 1935, 90, 331.
- Metastases of carcinoma of the breast. F. KATSA. *Arch. f. klin. Chir.* 1935, 82, 379.
- Sacro-lumbar metastases of scirrhous carcinoma of the breast in a man. A. RODO. *Arquivo de patol.* 1934, 6, 615.
- The value of pre-operative irradiation in breast cancer. Studies on eighty-one operable cases. F. E. ADAMS and F. W. STEWART. *Ann. Surg.* 1935, 102, 34. [41]
- The occurrence of edema and disturbance in motility and sensation following radical operation for carcinoma of the breast. R. DAVEN. *Beitr. u. klin. Chir.* 1935, 16, 347.

Trachea, Lung, and Pleura

- A perforating foreign body of the trachea. G. BERRY. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 839.
- The bacterial flora associated with foreign bodies in the trachea and bronchi. C. J. BLINDER. *Ann. J. M. Sc.* 1935, 90, 409.
- Anatomical repercussions of ligation of the pulmonary artery on the heart, liver and kidneys. F. CATALAN. *Arch. ital. di chir.* 1935, 40, 69. [42]
- A telescopic bronchoscope. L. E. WOLSKEL and J. SCHLOSS. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 850.
- Foreign bodies in the air passages, observations on complications and end-results. L. M. CLEGG. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 879.
- The removal of molar tooth from the left main stem bronchus. W. B. CHAMBERLAIN. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 844.
- Spontaneous pneumothorax occurring in individuals in apparent health. S. GRAFF-GREINER. *Acta med. Scand.* 1935, 85, 304.
- Cystic emphysema of rapid development. G. SAYAGO and L. L. DORRIS. *Scienze med.* 1935, 4, 31.
- Chronic and morphological types of pulmonary air cysts of emphysematous and anular shape. P. FROST. *Laryngol. Otol. and Otorhinol. Presse med.* 1935, 42, 81. [43]
- Pulmonary tuberculosis simulating tuberculous. F. MARJES. *Acta med. Scand.* 1935, 85, 338.
- Indications for artificial pneumothorax in ectonococcal cyst of the lung. J. C. MALLON. *Med. Abstr.* 1935, 9, 96.
- Pneumothorax in modern practice. F. D. GÓNEZ and J. C. NÚÑEZ. *Arch. uruguayas de med. chir. y especial.* 1935, 7.
- The influence of artificial pneumothorax as therapeutic treatment in pulmonary tuberculosis. D. R. H. VERNON. *Minnesota Med.* 1935, 4, 530.
- Unilateral pneumothorax: report of case. C. BARBERA. *Pubblic. Roma.* 1935, 4, see med. 555.

- Fibrous bodies in artificial pneumothorax. H. K. TAYLOR and I. D. BOWEN. *Radiology* 1935, 25, 274.
- The results of pneumocystostomy. A. BARRO, A. ROCA, E. ANTASAVITTA, and A. ANTASAVITTA. *Arch. uruguayas de med. chir. y especial.* 1935, 7, 8.
- The late results of pneumocystostomy. F. D. GÓNEZ and A. R. GÓNEZ. *Arch. uruguayas de med. chir. y especial.* 1935, 7, 8.
- Unilateral pneumothorax. E. K. GREEN. *Minnesota Med.* 1935, 13, 576.
- An evaluation of extrapleural pneumocystostomy. G. MARIN. *Irish J. M. Sc.* 1935, 1, 2, 537.
- Clinical concept of indications for thoracostomy. A. BARRO, A. ROCA, E. ANTASAVITTA and A. ANTASAVITTA. *Arch. uruguayas de med. chir. y especial.* 1935, 7, 5.
- Anatomopathological changes following thoracostomy. STROGO. *Arch. de med. chir. y especial.* 1935, 16, 371.
- Pneumocystostomy in the infant. E. DEMON. *J. de med. de Bordeaux.* 1935, 1, 6, 5.
- The surgical treatment of abscesses of the upper lobes of the lung. V. A. GIKAR. *Vesta Khir.* 1935, 37, 145.
- A contribution to the surgical treatment of pulmonary emphysema. R. GALLI. *Riforma med.* 1935, 51, 117.
- The pseudotuberculous forms of malignant lymphogranuloma. J. GORI, L. DANIELLO, and M. MANCINI. *Arch. med.-chir. de l'appar. respir.* 1935, 10, 831.
- A further study of abscesses of the bronchi. R. KRANZ and M. L. BOSE. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 861.
- The primary carcinoma of the lung. R. H. JARRÉ. *J. Lab. & Clin. Med.* 1935, 30, 227.
- Primary carcinoma of the lung. L. F. FENWELL. *New York Biol. J. M.* 1935, 35, 851.
- The clinical aspects of primary pulmonary carcinoma. W. A. SARRIS. *J. South Carolina M. Ass.* 1935, 1, 169.
- Bronchogenic carcinoma. An analysis of fifty-four cases with a morphological classification. M. O. WARD and B. S. ELLIOTT. *Ann. J. M. Sc.* 1935, 90, 361.
- Total pneumocystostomy. R. C. FERRARI. *Scienze med.* 1935, 4, 368.
- Considerations regarding total pneumocystostomy. A proposed new technique, extrapleural apico-pneumocystostomy. R. C. FERRARI. *Bol. y trab. Soc. de cir. de Buenos Aires.* 1935, 4, 89. [44]
- Pneumocystostomy complicating postpneumocystostomy. E. F. RUTLER. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 855.
- Tuberculous emphysema: its pathogenesis and treatment. F. E. BOYD. *Med. Abstr.* 1935, 9, 304.
- The treatment of emphysema in children by apical lobectomy. C. M. BLANCH. *J. Med. Ass. Georgia.* 1935, 44, 146.
- Attempts to treat pleural emphysema with caustics. W. WAGNER. *59 Tag d. deutsch. Ges. f. Chir. Berlin.* 1935, 193. [45]
- The treatment of pleural emphysema in the October Hospital of Kiev during a period of ten years. T. K. AKOTAYEV. *Vesta Khir.* 1935, 37, 40.

Heart and Pericardium

- Heart wounds. M. S. KONTSEVICH. *Kosmicheskoy Vesta Khir.* 1935, 37, 35.
- Primary tumors of the heart, with special reference to certain features which led to logical and correct diagnosis before death. S. A. SHELLEKOV. *Ann. Int. Med.* 1935, 9, 340.

BIBLIOGRAPHY OF CURRENT LITERATURE

- Purulent pericarditis a report of five cases in which treatment was by pericardiotomy, and a review of the literature from April 30, 1927, to January 1, 1934. A M SHIPLEY and N WINSLOW Arch Surg, 1935, 31 375
- Chronic constrictive pericarditis treated by pericardial resection P D WHITE Lancet, 1935, 229 539, 597
- The diagnosis, clinical course, and operative treatment of echinococcosis of the pericardium A OPOKIN and K KOLJU Arch f klin Chir, 1935, 181 696 [45]
- A case of intubation of the esophagus H P MOSHER Ann Otol, Rhinol & Laryngol., 1935, 44 847
- Antethoracic esophagoplasty W NOORDENBOS Nederl Tijdschr v Geneesk., 1935, p 3350
- Two antethoracic esophagoplasties at the end of four years J PODLAHA Rozhl Chir a Gynaek. C chir, 1935, 14 204
- The thymus gland, its relation to surgical risk. C W HENSON New York State J M, 1935, 35 860

Esophagus and Mediastinum

- Perforation of the esophagus by swallowed foreign bodies J E G MCGIBBON and J H MATHER Lancet, 1935, 229 593
- Lactic-acid stricture of the esophagus C E PITKIN Ann Otol, Rhinol & Laryngol., 1935, 44 842
- Cicatrical atresia of the esophagus H L KEARNEY Ann Otol, Rhinol & Laryngol., 1935, 44 719
- Diverticulum of the esophagus and goiter R. MEYER-WILDISEN Beitr z klin. Chir, 1935, 161 377
- Operative treatment of esophageal diverticulum L SCHWARZ Zentralbl f Chir, 1935, p 1446

Miscellaneous

- Gunshot wounds of the thorax in war D'HARCOURT and LANDA. Prog de la clin, Madrid, 1935, 23 540
- The roentgen diagnosis of diaphragmatic hernia A T BOGAJEVSKY Vestn Khir, 1935, 37 99
- Diaphragmatic hernia, with particular reference to so-called hiatus hernias K VIDAKOVITS Orvosi hetil, 1935, pp 603, 634
- Right-sided eventration of the diaphragm F G NICHOLAS and A M NUSSBRECHER Lancet, 1935, 229 611
- Non-traumatic hernia through the right parasternal foramen of Morgagni R H MEADE, JR and I S RAVDIN Ann Surg, 1935, 102 465

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

- The cause of postoperative rupture of abdominal incisions H J SIMS Colorado Med, 1935, 32 716
- Incisional hernia E S J KING Brit J Surg, 1935, 23 35 [46]
- Perineal hernias R L MASCIOITRA and R. V CHILESE Rev méd-quirurg de patol femenina, 1935, 3 33
- Incarcerated bladder in a scrotal hernia F J PETRONF and E VIERA New England J Med, 1935, 213 614
- Ox fascia repair in the cure of hernia M J ECAN J Med Ass Georgia, 1935, 24 317
- A method of repair of femoral hernias by a fascial strip from the aponeurosis of the external oblique muscle G A MARKS New England J Med, 1935, 213 505
- Linitis plastica. N A GUREVITCH Vestn Khir, 1935, 37 61
- Reaction of the peritoneum as it affects the surgical pathology of peritonitis J W KENNEDY Am J Surg, 1935, 29 387
- Bile peritonitis J GASINSKI Chir klin 1934, 3 203
- Hematogenous, purulent, peritonitis in infants S V MESENEV Vestn Khir, 1935 37 139
- Pneumococcus peritonitis. C F HORINE Ann Surg, 1935, 102 391
- The question of gas peritonitis C LANGE Zentralbl f Chir, 1935, p 1821
- Pharyngogenic hematogenous streptococcal peritonitis J FELSEN and A G OSOFSKY Arch Surg, 1935, 31 437
- The management of acute peritonitis L P GAMBEE Northwest Med, 1935, 34 339
- The treatment of diffuse peritonitis with particular reference to the clinical operative material of the last ten years O HOEHE Wien med Wchnschr, 1935, 2 738
- An experimental contribution on serum therapy for peritonitis H CHIARI and H KUNZ Arch f klin Chir, 1935, 181 715
- The treatment of purulent peritonitis with serum B MAZAL Bratislav lek Listy, 1935, 15 367
- Pentoneal hydatid disease B DELL'ORO Bol Soc de chirug de Rosario, 1935, 2 290

- Retroperitoneal hydatid cyst with invasion of the ilio-pelvic mesocolon. J C BARBERIS Bol Soc. de chirug de Rosario, 1935, 2 184
- A clinical study of intraperitoneal adhesions and their treatment with mud T P KORKHOV Vestn Khir, 1935, 37 70
- Retroperitoneal and mesenteric tumors R. STEINERT Norsk Mag f Lægevidensk., 1935, 96 302 [46]
- Mesenteric vascular occlusion H STEIERSON Ann Surg, 1935, 102 171 [47]
- Mesenteric thrombosis J K DONALDSON and B F STROUT Am. J Surg, 1935, 29 208
- Mesenteric embolus WUTKE. Zentralbl f Chir, 1935, p 1900
- Two cases of rupture of mesenteric chylous cysts L E VOLODARSKY Norsk Mag f Lægevidensk., 1935, 96 496
- The omentocolic membrane and its relation to the rotation of the intestine M T LORIN EPSTEIN Vestn Khir, 1935, 37 77
- Cysts of the omentum. J HORGAN Am. J Surg, 1935, 29 343

Gastro-Intestinal Tract

- The clinical significance of pneumatosis cystoides of the gastro-intestinal tract, with a contribution on emphysematous cystitis E RUCKENSTEINER and E KUY Zentralbl f Chir, 1935, p 1531
- Tumors of the digestive tract C F GESCHICKTER Am. J Cancer, 1935, 25 130
- An error in the roentgen diagnosis of foreign bodies F EISLER. Roentgenprax, 1935, 7 447
- Extragastric manipulation for removal of the esophagus J HORGAN in the stomach by way of the esophagus J HORGAN Virginia M Month, 1935, 62 326
- Prolapsing lesions of the gastric mucosa. PENDEPGRASS and ANDREWS Am. J Roentgenol, 1935, 34 337
- Congenital pyloric obstruction C F MCGILL New England J Med, 1935, 213 567
- Strangulation of the stomach by a short ligamentum teres hepatis with the clinical picture of carcinoma. H NATHAN Deutsche Ztschr f Chir, 1935 245 80

- Torsion and volvulus of the stomach with diaphragmatic hernia. S. D. WRIGHT. *Ann. Surg.* 1935, 101: 352.
- Diverticulum of the cardia of the stomach. J. M. BOWMAN and B. KAMLEY. *Ann. J. Roentgenol.* 1935, 54: 357.
- Rupture of the wall of the stomach. C. HANDELSMAN. *Zentralbl. f. Chir.* 1935, p. 127.
- Is death in the case of massive gastric hemorrhage due to toxic extraluminal venous. T. CHRISTIANSEN. *Hosp. Tid.* 1935, p. 361.
- The frequency of gastric diseases due to laes. A. STERNHARDT. *Publik. Ges. lek.* 1935, p. 350.
- The indications for and techniques of producing gastric fistula. F. PATRICK. *Zentralbl. f. Chir.* 1935, p. 1440.
- Contrast meals and the perforation of an ulcer. PAAS. *Zentralbl. f. Chir.* 1935, p. 73.
- The blood pressure in gastro-intestinal ulcers, with some remarks on ulcer statistics. W. BAUERMEISTER. 1935. Kiel, Dissertation.
- The early diagnosis and treatment of gastroduodenal ulcer. F. BARON. *Arch. argent. de enferm. d. apar. digest.* 1935, 10: 444.
- Bulbar stomach due to ulcer on the lesser curvature pylorogastrojejunum with gastroduodenal anastomosis. A. F. SIV MARTIN. *Bolet. y trab. Soc. de ciruj. de Buenos Aires.* 1935, 9: 337.
- The diagnosis of perforated peptic ulcer. II. Differential diagnosis. II. A. SIVIGER. *Internat. Clin.* 1935, 3: 116.
- Two hundred acute perforated ulcers of the stomach and duodenum from the Boston City Hospital. W. R. McANAMON. *New England J. Med.* 1935, 3: 447.
- The surgical management of peptic ulcer. E. H. WELSH. *J. Indiana State M. Ass.* 1935, 28: 417.
- The surgical treatment of massive gastric-ulcer hemorrhage. RIVINGTON. *Zentralbl. f. Chir.* 1935, p. 1704.
- Late results of gastrectomy in the treatment of gastric and duodenal ulcers and the possibilities of benefiting patients by means of antrum anastomoses. R. LEVY and YACOB. *Med. Ther.* 1935, 9: 57, 150.
- Failure in the surgical treatment of gastric and duodenal ulcer. F. RABINOWITZ. *Zentralbl. f. Chir.* 1935, p. 518.
- A roentgenological follow up of 35 cases of peptic ulcer with chemical and laboratory findings. A. J. DELLARNO. *Ann. J. Roentgenol.* 1935, 34: 60.
- Radiological study of the duodenum in the presence of gastric tumors. A. RATTI. *Radiol. med.* 1935, 22: 405.
- The modes of onset and symptoms of carcinoma of the stomach. D. L. REIDER. *Minnesota Med.* 1935, 3: 586.
- Scirrhus carcinoma of the stomach followed by power shaped carcinomatous nodulating granuloma. T. DRENI. *Revue. Bull. et notes Soc. med. d. hosp. de Par.* 1935, 3: 41.
- Lymphomatoses of the stomach. M. A. HANCOCK. *Brit. M. J.* 1935, 1: 176.
- Lymphomatoses of the stomach. F. CLAR. *Med. Klin.* 1935, 55.
- A case of sarcoma of the stomach treated on its pedicle. F. PICK. *Wien. med. Wochenschr.* 1935, 8: 6.
- The indications for gastrectomy and pylorostomy. B. M. B. *Ann. Surg.* 1935, 62: 373.
- Pylorocystic gastrectomy. A. BERNHARDT. *Ann. J. Surg.* 1935, 60: 354.
- The technique of gastroduodenal resection. M. DONATI. *Clin. y lab.* 1935, 9: 7.
- Serious mediastinal emphysema during operations on the stomach under nitrous oxide. E. SCHWABERMAN. *Wien. med. Wochenschr.* 1935, 8: 6.
- An after study of patients subjected to gastric operations. F. JAKSCH. *Deutsche Zeitschr. f. Chir.* 1935, 243: 102.
- Practical aspects of the therapeutic problem in intestinal obstruction, with notes concerning the reaction accom-
- panying conservative decompression by suction. O. H. WAGNER. *Internat. Clin.* 1935, 3: 127.
- The test and significance of hemoglobin in secret brown discharge from the bowel. I. BOSS. *Alten. Wochenschr.* 1935, 1: 908.
- Pneumatois cystoides intestinal. O. MAYER. *Arch. f. klin. Chir.* 1935, 181: 707.
- The pathogenesis and treatment of pneumatois cystoides intestinal. K. MANNING. *Chir. Ann.* 1934, 3: 177.
- The operative treatment of typhoid perforation of the bowel. C. JARZ. *Oswest. Med.* 1935, p. 174.
- Principles of intestinal surgery. G. DE TARNOWSKY. *Medica J. J.* 1935, 66: 210.
- Notes following Braun's entero-anastomosis. W. HINE. *Chirurg.* 1934, 6: 813.
- Worm infestation of the submucosa of the small bowel. C. BOVINE. *Genesek. Tijdschr. v. Nederl. Ind.* 1935, 75: 891.
- Duodenal regurgitation versus electrolytic duodenitis in the gastric ulcer. T. TROSKEL. *Acta med. Scand.* 1935, 85: 58.
- The anatomical changes in experimental removal of the duodenum. E. BIZZI. *Ann. Ital. di chir.* 1935, 24: 373.
- On the frequency and age incidence of duodenal diverticula. J. C. B. GRANT. *Canadian M. Ass. J.* 1935, 21: 158.
- Diverticulum of the duodenum. CHACE and PARRER. *Memor. Presso med. Par.* 1935, 43: 133.
- Diverticulum of the superior portion of the duodenum. F. S. P. VAN BUCHEN. *Nederl. Tijdschr. v. Geneesk.* 1935, p. 377.
- Suprarenocolic periduodenitis. C. FRICK. *Rev. med. can. de chir.* 1935, 3: 503.
- Duodenal ulcer in infancy and childhood. K. TAMINO and N. KOSAYARI. *Ann. J. Surg.* 1935, 60: 379.
- Duodenal ulcer with rupture on the fourth day of life. F. SCHWARTZ. *J. Am. M. Ass.* 1935, 105: 875.
- Resection with anastomosis or gastro-colostomy as an emergency procedure in duodenal ulcer. F. STALLINGER. *Wien. klin. Wochenschr.* 1935, 1: 68.
- Operative treatment of non resectable duodenal ulcer. F. HOLLERICH. *Zentralbl. f. Chir.* 1935, p. 309.
- The working capacity after duodenal and gastric ulcers. H. H. BUSHNARD and W. L. SCOTT. *Lancet.* 1935, 1: 710.
- Subcutaneous perforation of the pylorus. J. S. COLEMAN and C. J. MCCORMACK. *Ann. Surg.* 1935, 101: 305.
- Regional (terminal) ileitis. II. L. BUCKLE and W. K. LEE. *Ann. Surg.* 1935, 101: 4.
- Chronic manifestations of Meckel's diverticulum. C. MARTIN DU PAN and A. PERROT. *Rev. med. de la Suisse Rom.* 1935, p. 680.
- Intestinal obstruction due to Meckel's diverticulum. M. J. VIGNERON, R. HENRIKSEN, and B. CALGANO. *Bolet. y trab. Soc. de chir. de Buenos Aires.* 1935, p. 300.
- Intestinal obstruction due to Meckel's diverticulum. DELANCEY. *Bolet. y trab. Soc. de chir. de Buenos Aires.* 1935, p. 639.
- Gastrointestinal wounds of the abdomen complicated by Meckel's diverticulum. F. STAEHR. *Munchen. med. Wochenschr.* 1935, 107.
- An experimental study on the resection in acute obstruction of the large intestine. H. SWARZ. *Med. y klin. Chir.* 1935, 6: 4.
- Diverticulum of the large intestine, an evaluation of historical and personal observations. H. C. OGDEN and J. A. BARBER. *Ann. Int. Med.* 1935, 9: 453.
- Successful resection of the bowel for Hirschsprung's disease. H. HERRCK. *Zentralbl. f. Chir.* 1935, p. 1464.

BIBLIOGRAPHY OF CURRENT LITERATURE

91

- Chronic ulcerative colitis among elderly persons J C M BRIST and J A BIRGEN Minnesota Med, 1935, 18 583
- Simple ulcer of the large bowel R A KERR Lancet, 1935, 229 550
- Circular exclusion of the colon and small bowel V BERNARDO Ann Ital di chir, 1935, 14 631
- Volvulus of the cecum, acute and chronic, with reports of eight cases R H SWEET New England J Med, 1935, 213 287
- Appendix in the left upper abdomen M KASPAR Zentralbl f Chir, 1935 p 1881
- Some curious types of false appendicitis GOLZIER GILIAN Arch de med, chirug especial, 1935, 16 528
- The appendicular form of bacillary dysentery, with notes on mesenteric adenitis and inflammation of the distal portion of the ileum J FELSIN Am J Dis Child, 1935, 50 661
- Chronic appendicitis W H COLE J Missouri State M Ass 1935, 32 360
- Chronic appendicitis versus mucous colitis C D SMITH J Med Soc. New Jersey, 1935, 32 522
- Histological changes in the meso-appendix in chronic appendicitis P MARCONI Arch Ital di chir, 1935, 40 481
- A follow up study of patients operated on for primary chronic appendicitis E PORRE Norsk Mag f Læge vidensk, 1935 66 395
- Umbilical colic, the lymphangitic type of appendicitis and mesenteric lymphangitis B O PRIEDMAN Muenchen med Wchnschr, 1935, 1 642
- Reflex processes in appendicitis with particular reference to Head's zone H BJÖRK Tinska lak sällsk handl, 1935, 77 283
- A rare complication of appendicitis I KAZDA Arch f klin Chir, 1935, 182 276
- Acute appendicitis complicated by peritonitis immediate and late results G W KEHL and C B RENTSCHLER Am J Surg, 1935, 29 373
- Some points in the treatment of appendicitis A J TRINCA Med J Australia, 1935, 2 308
- A critical analysis of thirty five deaths following appendicitis C R DAVIS Am J Surg, 1935 20 368
- The favorable time for operation in appendicitis and the question of appendectomy in the presence of abscesses W ELFELDT Zentralbl f Chir, 1935 p 1470
- Indications and technique of the amplified McBurney incision M MARGOTTINI Polichin, Rome 1935 42 sez prat. 1775
- Enterostomy for peritonitis due to appendicitis W SREIGER Wien med Wchnschr, 1935 2 820
- Appendicitis A study based on 1,000 operated cases A. LIPPAY Orvostudokozás, 1935, 25 515
- Clinical and operative study of obstructed appendicocoele D A COLETTI Polichin Rome 1935, 42 sez prat 1767
- Carcinoid of the appendix D BRACHETTO-BRILIN and O MAZZINI Bol v trab Soc. de cirug de Buenos Aires, 1935, 19 498
- Rupture of the sigmoid by hydrostatic pressure A WALKLING Ann Surg 1935, 102 471
- Radium burns of the rectum V C DAVID Ann Surg, 1935, 102 422
- The treatment of inflammatory hyperplastic stenosis of the rectum E KONDOLEON Zentralbl f Chir, 1935, p 1570
- Rectoral hemorrhage E A DANIELS Canadian M Ass J, 1935, 33 287
- The treatment of ulcerative rectocolitis and other types of colitis with chlorine G ZORRAGUIN Bol y trab Soc de cirug de Buenos Aires, 1935 19 545
- Isthorectal abscess and rectal fistula W H PRIOLEAU J South Carolina M Ass, 1935, 31 167
- Lapoma of the rectum S D WINSTEIN and W LIRBFERMAN Am J Surg, 1935, 29 424
- Submucous carcinoma of the rectum A JIRASEK. Rozhl Chir a Gynaek C chir, 1935, 14 199
- A case of carcinoma of the rectum cured by electro-coagulation and radium J NORDENTOF Ugesk. f Læger, 1935 p 626
- The development of sacral methods of operation for cancer of the rectum M F MANDL Lyon chir, 1935, 32 566
- Elevation of the perineum, a new principle for simplifying the operation for rectal carcinoma I MANDL Zentralbl f Chir, 1935, p 1740
- Resection of the rectum because of carcinoma of the colon H FRISTRER. Wien med Wchnschr, 1935, 2 748
- Transproctoscopic resection of rectal carcinoma N ZIMM J Indiana State M Ass, 1935, 28 424
- Prolapse of the anus and rectum and its treatment A MEUTING Muenchen med Wchnschr, 1935, 2 1156
- Spontaneous thrombosis of the inferior hemorrhoidal plexus K BLOND Med Klin, 1935, 2 880
- The Whitehead operation L SZÉKELY Zentralbl f Chir, 1935, p 1535
- ## Liver, Gall Bladder, Pancreas, and Spleen
- Changes in the biliary tract due to bacterial infection, and their sequelae W BRACKETT Chirug, 1935, 7 408
- Biliary drainage T HUNT Lancet, 1935, 229 608
- The surgical treatment of diseases of the biliary passages J PETRIVALSKY Rozhl Chir a Gynaek C. chir, 1935, 14 193
- Methods and results in the surgical treatment of diseases of the biliary passages. D CHEEVER. New England J Med, 1935, 213 463
- Disturbances of the body fluids in biliary surgery A J BENGOLEA, C V SUAREZ, and R S FERRACANT Bol y trab Soc. de cirug de Buenos Aires, 1935, 19 583
- Experimental researches on the function of the liver following sympathectomy on the hepatic artery DONATI CAVAZZA Ann Ital di chir, 1935, 14 535
- The diagnosis of hepatic disorders D GRAHAM Canadian M Ass J, 1935, 33 247
- The differential diagnosis of diseases of the liver B B V LION Ann Int. Med, 1935, 9 258
- Obstructive jaundice D P MACGUITRE Ann Surg, 1935, 102 360
- Jaundice. A consideration of the phenomenon from chemical and biochemical viewpoints V E SIMPSON West Virginia M J, 1935, 31 389
- The report of a patient with hepatic distomiasis R JEREMY and E B JONES Med J Australia, 1935, 2 351
- A case of bronchobiliary fistula due to hydatid disease R L MASCIOTTA and R V CHILESE Rev méd-quirurg de patol femenina, 1935, 3 65
- Liver abscess I Amebic abscess A OCHSNER and M DEBAKEY Am J Surg, 1935, 29 173
- Tropical abscess of the liver G HROMADA Wien med Wchnschr, 1935, 2 806
- An intrahepatic biliary stone and a cholecystoduodenal fistula G DISTEFANO Polichin, Rome, 1935, 42 sez chir 500
- Solitary adenoma of the liver A TAVARES Arquivo de patol, 1934, 6 520
- Hepatic and lymph node metastases of a melanotic carcinoma of the anterior abdominal wall A CISVEROS Rev méd-quirurg de patol femenina, 1935, 3 28

- A lymphatic connection between the gall bladder and liver. R. W. BARTLETT, G. CARR, Jr. and E. A. GRABER. *Surg. Gynec. & Obst.* 1935, 6, 365.
- Cholecystography its present clinical value. R. McWHIRTER. *Brit. J. Surg.* 1935, 3, 55. [49]
- Oral cholecystography: evaluation of the method and suggestions for a new nomenclature. E. P. PERROTTAS and P. J. HODGE. *Radiology* 1935, 29, 561.
- An analysis of the cholecystographic findings in 300 cases, with comparison of the operative findings in cases operated upon. J. B. JOHNSON and H. C. HARRILL. *Radiology* 1935, 25, 300.
- Diseases of the gall bladder. E. GONZALEZ CONTRA, R. YANZI, and A. SANCHEZ. *Rev. med. de Chile*, 1935, 63, 1. [49]
- Changes in the stomach following the introduction of aseptic foreign bodies into the gall bladder. A. CANOJA Polchik. *Roma*, 1935, 42, *Ann. Chir.* 475.
- Variety of the veins of the gall bladder. D. MALOWITZKY. *Deutsche Zeitsch. f. Chir.* 1935, 245, 83.
- A clinical and pathological study of diverticula of the gall bladder. H. HARTMAN. *Fortschr. Roentgenstr.* 1935, 52, 20.
- Cholecystitis. J. S. YOUNG. *J. Missouri State M. Ass.* 1935, 3, 174.
- Gall stones in cases of congenital absence of the gall bladder. J. POLKA. *Germ. Med.* 1935, p. 713.
- Can gall stone disease be reckoned as pre-cancerous condition? C. STEINBERG. *Wien. med. Wochenschr.* 1935, 79, 795.
- Squamous-cell cancer of the gall bladder with special reference to its histogenesis. G. CHODK. *Arch. ital. di Chir.* 1935, 40, 253. [49]
- Cholecystectomy in biliary surgery. H. FLEISCHER and D. KATZNER. *Beitr. z. klin. Chir.* 1935, 6, 513.
- Must we revise our indications for cholecystectomy? D. AUSTIN. *Internat. Chir.* 1935, 3, 72.
- Electrosurgical cholecystectomy. I. Experimental observations. II. Clinical application. L. R. WETTERER. *New England J. Med.* 1935, 213, 594, 674. [50]
- Complications following cholecystectomy: Their analysis and treatment. L. von FERNBERG. *Arch. f. Verdauungskr.* 1935, 57, 5.
- Spontaneous rupture of the common duct following common-duct drainage. F. BERNARD. *Zentralbl. f. Chir.* 1935, p. 83.
- Postoperative cholangiography in common-duct stone. R. L. MANGIOTTA and F. F. FERRAZZO. *Rev. med. quarte de patol. interna*, 1935, 3, 94.
- The occurrence of stones in the common duct following operation. R. L. MANGIOTTA and F. F. FERRAZZO. *Rev. med. quarte de patol. interna*, 1935, 3, 96.
- Cancer of the common duct and biliary lithiasis. V. ROMANO and S. RAY. *Rev. Assoc. med. argent.* 1935, 49, 834.
- The late results of 406 operations on the common bile duct during the years 1910 to 21. K. HIRSH. *Chir. Gesellsch., Observation*.
- Disturbances of the internal and external secretions of the pancreas following injury. L. JOHNS. *Beitr. klin. Chir.* 1935, 6, 520.
- Functional diagnosis of diseases of the pancreas. A. LINDQVIST. *Scand. Läkertidningen*, 1935, p. 679.
- Little known forms of chronic pancreatitis. ROSS. *Chir. Chir.* 1935, 1, 354.
- The causes of death from complete pancreatic failure in the dog. J. BERRY. *Rev. belge d. sc. med.* 1935, 7, 204.
- Pancreatic cysts. S. BROCK. *Radiology* 1935, 25, 393.
- Cysts of the pancreas. V. DI PIETRO. *Ann. ital. di chir.* 1935, 14, 607.
- Hypertrophied duct to adenoma of the islets of Langerhans. L. B. BERRY, E. H. HARRISON, and L. P. ELLER. *J. Kansas M. Soc.* 1935, 36, 159.
- Two mixed cell adenomas of the human pancreas cultivated in vitro. M. R. MURRAY and C. F. BRADLEY. *Am. J. Cancer* 1935, 25, 95.
- Carcinoma of the pancreas, cutaneous metastases of the portal vein, spleen. B. A. MICKEL, A. C. FROST, and T. YOUNG. *J. Iowa State M. Soc.* 1935, 25, 408.
- Surgery of the pancreas. H. URCUT. *Brit. M. J.* 1935, 2, 367.
- Surgical treatment of the pancreas, the process of repair of surgical lesions of the pancreas. T. CALSOLARI. *Polchik. Roma*, 1935, 42, *Ann. Chir.* 437.
- Late results of resection of a pancreatic fistula into the stomach. G. ZENTRALBL. *f. Chir.* 1935, p. 1943.
- A case of rupture of the spleen with encapsulated late hemorrhage. C. STANCO. *Zentralbl. f. Chir.* 1935, p. 825.
- A case of Bland disease. A. TAKAYAMA. *Arch. f. exp. Chir.* 1935, 13, 92.
- Malignant hyperplasia of the lymph follicles of the spleen. H. R. DECKER and H. G. LITTLE. *J. Am. M. Ass.* 1935, 105, 932.
- Splenectomy for leukemia. A. BERRY. *Zentralbl. f. Chir.* 1935, p. 146.
- Late results of splenectomy following trauma. R. OR PLANTA. 1934. Zurich, Dissertation.
- Fatal leukaemia two years after splenectomy. J. C. GILIN. *Rev. Assoc. med. argent.* 1935, 49, 850.

Miscellaneous

- The rectovesical ligament. J. C. B. ALLEN. *Med. J. Australia*, 1935, 250.
- Blunt injuries to the abdomen. W. HILL. 1935. *Jena, Dissertation*.
- Penetrating wounds of the abdomen. F. J. McGOWAN. *Ann. Surg.* 1935, 103, 395.
- Impaling injuries of the pelvis. J. MARSHALL and B. GRADY. *Br. Med. J.* 1935, 5, 344.
- Intra-abdominal apoplexy. J. R. BUCKENBERG and E. I. GREENE. *J. Am. M. Ass.* 1935, 105, 874.
- Torsion of abdominal viscera. A. NATHANSON. *Med. Welt*, 1935, p. 304.
- Invagination. R. GOLDSTEIN. *Ann. Surg.* 1935, 103, 387.
- Left paraduodenal hernia. C. F. BALL. *Am. J. Surg.* 1935, 49, 48.
- Abdominal adhesions. H. S. BRUCE. *Med. J. Australia*, 1935, 250.
- Retrocaval hydral cyst. L. BART. *Verh. Biol. Soc. de chir. de Rouen*, 1935, 107.
- Some cases of error in the diagnosis of abdominal tumors. A. MONTAUDO. *Argento de patol.* 1934, 4, 553.
- Internal strangulation following operations on the abdomen. L. KAUFMA. *Beitr. klin. Chir.* 1935, 16, 23.
- Internal hernia left in the abdomen. F. HERTZ. *Zentralbl. f. Chir.* 1935, p. 940.
- Free bodies in the abdominal cavity. E. S. DRACHY. *SEATA. Woch. Khir.* 1935, 17, 34.

BIBLIOGRAPHY OF CURRENT LITERATURE

GYNECOLOGY

Uterus

- The function of the myometrium The relationship between connective tissue cells and elastic fibers of the virgin and pregnant uterus G VALLE *Gynecologia*, 1935, 1 875
- The conversion of the uterine epithelium into a syncytial structure under hormonal influences Contribution to the physiopathology of the female sex hormone A MIGLIAVACCA *Arch J Gynaek*, 1935, 159 172 [51]
- Electro-uterography H C FALK and R NAHON *Am J Obst. & Gynec*, 1935, 30 403
- End results with the Watkins' interposition operation H S EVERETT *Surg, Gynec. & Obst.*, 1935, 61 403
- Historical review of a syndrome embracing utero-ovarian atrophy with persistent lactation (Frommel's disease) L A SHARP *Am J Obst. & Gynec*, 1935, 30 411
- Uterine hemorrhage, its pathology and clinical significance B F STOUT and D A TODD *Texas State J M*, 1935, 31 340
- Hematometra and hematocolpos A A FALSIA and M V FALSIA *Bol Soc. de obst. y ginec de Buenos Aires*, 1935, 14 290
- Tuberculous endometritis. M W DIETHELM and T L RAMSEY *Am J Obst. & Gynec*, 1935, 30 420
- Abscess of the parametrium with perforation of the rectum and the uterus, roentgenological visualization W GEISENDORF *Gynec. et obst.*, 1935, 32 159
- Lymphangioma of the uterus E DE MEURON *Gynec. et obst.*, 1935, 32 135
- Mixed tumor of the body of the uterus E BAZTERRICA *Bol Soc. de obst. y ginec. de Buenos Aires*, 1935, 14 280
- The results of treatment of benign lesions of the cervix P TOMPKINS *Am J Obst. & Gynec*, 1935, 30 369 [51]
- Anatomicopathologicoclinical studies of pseudocystic degeneration of uterine myomas and of cystic tumors of the ovary F SPIRITO *Rassegna internaz. di clin e terap.*, 1935, 16 819
- Cancer of the uterus from the pathologist's viewpoint J L GOFORTH *Texas State J M*, 1935, 31 324
- The relationship of late menstruation to carcinoma of the corpus uteri R J CROSSEN and J E HOBBS *J Missouri State M Ass*, 1935, 32 361
- Early diagnosis of cancer of the cervix and body of the uterus T A PRESSLY *Texas State J M*, 1935, 31 316
- Carcinoma of the uterus, its early diagnosis and treatment W D FULLERTON *J Michigan State M Soc*, 1935, 34 521
- Carcinoma of the cervix uteri a clinical study of 940 cases E HENRIKSEN *Arch Surg*, 1935, 31 461
- Cancer of the cervix uteri in nulliparous women A report of fifty-three cases P TOMPKINS *Am J Cancer*, 1935, 24 397 [52]
- Ureteral obstruction in a carcinomatous cervix L S DREXLER *Radiology*, 1935, 25 315
- Pregnancy complicated by carcinoma of the cervix W NEILL, JR. *Am J Obst. & Gynec*, 1935, 30 414
- Carcinoma of the cervical stump L E PHANEUF *Am J Surg*, 1935, 29 479
- Cancer developing in the stump of the cervix after subtotal hysterectomy C BECLERE *Bull Soc d obst. et de gynec. de Par*, 1935, 24 372 [52]
- X rays and radium in the treatment of carcinoma of the cervix and fundus R H MILLWEE *Texas State J M*, 1935, 31 321

- Surgery in carcinoma of the uterus, cervix, and body A L McMURREY *Texas State J M*, 1935, 31 318
- The removal of lymph nodes in cancer of the cervix F J TAUSIG *Am. J Roentgenol.*, 1935, 34 354.
- Sarcomas of the uterus Di PAOLA and BAZAN *Bol Soc. de obst. y ginec de Buenos Aires*, 1935, 14 253
- Diffuse sarcoma of the endometrium G H MOENCH and L H MEEKER *Am J Obst. & Gynec*, 1935, 30 435
- Complications following cauterization of the cervix uteri D CANNELL and M DOUGLASS *Am J Obst. & Gynec*, 1935, 30 376
- Trachelorrhaphy by the method of Pestalozza P GAFFANI *Rev franç. de gynec. et d'obst.*, 1935, 30 613
- Motility in the transplanted, denervated uterus S KAMINSTER and S R M REYNOLDS *Am J Obst. & Gynec*, 1935, 30 395

Adnexal and Periuterine Conditions

- The physiology of the corpus luteum. W M ALLEN and S R M REYNOLDS *Am J Obst. & Gynec*, 1935, 30 309
- The normal and pathological histology of the rete ovarii R. GATTA and A. GRECO *Riv ital di ginec.*, 1935, 18 163
- Ovarian and pituitary hormones M FAIRLIE. *Brit. M J*, 1935, 2 533
- Folliculin A VALERIO *Folia med*, 1935, 16 339
- Local treatment with follicular extract by vaginal injection and the estral reaction in castrated guinea pigs MANZI *Arch di ostet. e ginec*, 1935, 42 419
- Cystic disease and its treatment with folliculin M E DAHL IVERSON *Lyon chir*, 1935, 32 513
- The value of roentgenological vision in a case of ovarian tumor L GALIFI *Radiol med*, 1935, 22 829
- Primary malignant tumors of the ovary W T MURPHY *Surg, Gynec. & Obst.*, 1935, 61 280
- Malignant epithelial tumors of the ovaries L R PYLE and O R CLARK *J Kansas M Soc.*, 1935, 36 367
- Ovarian carcinomas simulating surgical conditions of the abdomen P BERNSTEIN *Am J Surg*, 1935, 29 485

External Genitalia

- Tuberculosis of the external genitalia F POZZI *Gynecologia*, 1935, 1 891 [53]
- Clinical evaluation of the pathogenicity of trichomonas vaginalis A JACOBY and M G DER BRUCKE. *Am J Surg*, 1935, 29 414
- Trichomonas vaginalis and monilia albicans as causes of leucorrhoea K L KARNAKY *South M J*, 1935, 28 795
- Vulvovaginitis infantum. A C RUVS *J Am. M Ass*, 1935, 105 862
- Colposcopy in the prophylaxis of cancer A JAKOB *Bol Soc de obst. y ginec de Buenos Aires*, 1935, 14 246

Miscellaneous

- Difficulties of gynecological diagnosis E OROCHER *Clin ostet*, 1935, 37 457
- The interrelation of gynecological and gastro-intestinal symptoms G L MOENCH *Am. J Surg*, 1935, 29 399
- The anatomy of the umbilical canal M A GORELOV *Vestn Khir*, 1935, 37 90
- Diverticula of the female urethra. M S S EARLAM. *Australian & New Zealand J Surg*, 1935, 4 306 [53]
- Reconstruction of the female urethra. S H HARRIS *Surg, Gynec. & Obst.*, 1935, 61 366

- Partial amputation F PAPER J de med de Bordeaux 1935 12 55
- A new observation on the treatment of ecteriongia of puberty by roentgen irradiation of the spleen V VOLPE Radiol med 1935 1 830
- The excretion of active thyrostatic substances in the urine during the diastereism P GRUBERZENTZL J Gynecol 1935 p 3337
- Treatment of the disturbances of the surgical menopause by blood transfusions S THORZ Gynecologia 1935 1 857
- Intraputental hemorrhage from the female genitalia G VAYNA Orvosi hetil 1935 p 718
- The treatment of gynecological hemorrhage with Vitamin C F JUNGKAYA Klin Wochenschr 1935 1 400
- The treatment of benign hemorrhage with radio-active substances H EYER Zentrbl f Gynecol 1935 p 1303
- The medical treatment of genital hemorrhage due to causes other than pregnancy and tumors TURPAULT Rev franc de gynec et d'obst 1935 40 473 (52)
- A case of bleeding thrombocytopenia in a child J HUBERZENTZL Monatsschr f Geburtsh Gynecol 1935 90 5
- The treatment of gonorrheal urethritis in the female A PROBYR Dermat Ztschr 1935 7 5
- Bacteriomyces of the female reproductive tract E C HANLEY R D BAKER, and D S MARTIN Am J Obst & Gynec 1935 30 345

- Prolonged latency best in the treatment of pelvic leukothes O A WILLIAMS South M J 1935 28 791
- Endometriosis W L PEXLE South M J & S 1935 27 551
- Endometriosis of the inguinal region. M. FASOLI Gynecologia 1935 1 663
- Tumors of the female genitalia in infancy and adolescence V CHAKRABORTY Riv ital di ginec 1935 18 94
- Rare gynecological tumors V REXE Cas lek brn 1935 p 405
- The occurrence of protein in the presence of tumors U BAUDIER Arch f Gynecol 1935 59 101
- Cancer of the female urethra E B A in Am J Obst & Gynec 1935 30 318
- Electrotherapy and actinotherapy E DUBREUIL Rev franc de gynec et d'obst 1935 30 483 (54)
- Tribromethylpredicaments in operative gynecology J L REYER Am J Obst & Gynec 1935 30 332
- Blood transfusion in obstetrics and gynecology its results in the year 1934 M REXE Gynec et obst 1935 32 97
- Periodic fertility and sterility O MOORE South M J & S 1935 27 54
- The presence of Vitamin E in the blood of fertile women S ROBERTO Riv ital di ginec 1935 8 101
- The Donaggio reaction of the urine and blood serum MORRIS Arch di obstet ginec 1935 4 453

OBSTETRICS

Pregnancy and Its Complications

- A new chemical reaction for the diagnosis of pregnancy R A FERRARI and D J FRANCO Brucina med 1935 4 355 Bol Soc de obst y ginec de Buenos Aires 1935 4 10
- The Butting pregnancy test R G OWEN and H E CORR J Michigan Med Soc 1935 14 536
- The symptomatology of extramembraneous pregnancy E A BORDO Semina med 1935 42 59
- Full term intra abdominal pregnancy A M HELLMAN and H J STONE Am J Surg 1935 29 401 (85)
- Ruptured ectopic pregnancy simulating perforating ulcer of the stomach P BOUILLON Bol Soc de chir de Rosario 1935 3
- Elastic fibers of the terrene vessels in cases of normal insertion of the placenta P FERRARIO Riv ital di ginec 1935 8 9
- Tumors of the placenta P C BORRILL Rev med d Rosario 1935 73 666
- Chorionoma A MOBYRIVANI Ginek polska 1935 3 73 (83)
- The stereocentrometric method of fetometry and pelvimetry with its obstetrical application S H CUTTONE (West Virginia M J 1935 3 40)
- Transverse position of the fetus due to contractions of the rectus abdominus muscles recurring in three pregnancies TELAYNO Arch di obstet ginec 1935 4 423
- The diagnostic sign in amniocentesis D PORCARI Gynecologia 1935 845
- Hemorrhage at the termination of pregnancy due to rupture of vessel in velum uterini cord inserting placenta previa R BARR Clin obstet 1935 37 460
- The action of amnion in pregnancy ROBERTO Arch di obstet ginec 1935 4 389
- The amino acids of the blood in pregnancy, labor and the normal puerperium G SANCHEZ Riv ital di ginec 1935 8 140

- The effect of pregnancy on histamine sensitivity I. KARLOV and F. STRAZER Orvosi hetil 1935 p 529
- The prevention and prognosis of the late toxemia of pregnancy J S FARRARY Brit M J 1935 331
- Rebellious obstetrical pain in case of severe toxemia of pregnancy J BAZIL Bol Soc de obst y ginec de Buenos Aires 1935 4 390
- Blood lipids in eclampsia E M BOTO Am J Obst & Gynec 1935 30 33
- A short account of ten cases of eclampsia treated by intravenous injections of magnesium sulphate M M NOLAN Indian M Gaz 1935 70 503
- Tumors of the pregnant uterus H F DAY New England J Med 1935 5 605
- Polynucleated gravidarum S A COOK Med J Australia 1935 2 170
- Polynucleated pregnancy with the report of a case R D REYER J Med Cincinnati 1935 16 345
- The rubromer syndrome in pregnancy and in the post partum E KATZEL Ztschr f Geburtsh Gynecol 1935 120 109
- Diabetes and pregnancy LARKE and GEORGE DENTON Gynec et obst 1935 3 7 (89)
- Diabetes mellitus and pregnancy H DENTON Arch f Gynecol 1935 59 406
- Pregnancy complicating diabetes P WATTE Surg Gynec & Obst 1935 61 334
- A case of tuberculous meningitis and pregnancy ROC XAVIA Rumbel-med 1935 5 54
- Hypothyroidism in pregnancy W O PUFOR J Iowa State M Soc 1935 33 423
- Pregnancy complicating cardiac disease I DANCING and G KONIGZ Am J Obst & Gynec 1935 30 386
- Chemical and bacteriological findings in the pyocystitis of pregnancy F GASPARI Gynecologia 1935 2 747 (86)
- The treatment of habitual abortion H F KATZ Virology M Month 1935 61 134

- The modern treatment of septic abortion W BENTIN Bol. Soc. de obst. y ginec. de Buenos Aires, 1935, 14 226
- The modern treatment of septic abortion PAVLOVSKY Bol. Soc. de obst. y ginec. de Buenos Aires, 1935, 14 257
- Therapeutic abortion A review of some cases. W R. GRIFFITHS Med J Australia, 1935, 2 311
- The interruption of incompatible pregnancy before viability of the fetus E A BOERO Semana méd., 1935, 42 445
- A discussion of criminal abortion B DELL'ORO Bol. Soc. de ciruj. de Rosario, 1935, 2 163

Labor and Its Complications

- The counting of labor pains in obstetrics G K. F. SCHULTZE Deutsche med. Wchnschr., 1935, 1 121
- The lower uterine segment in labor E SANTI Clin. obstet., 1935, 37 489
- The perineum at childbirth, reinforcement of the tissues and a fulcrum principle F N K FALLS Canadian M. Ass. J., 1935, 33 272
- An analysis of labor in young girls A C POSNER and M PULVER. Am. J. Obst. & Gynec., 1935, 30 357
- Directed delivery, medical delivery? P BURGER. Gynec. et obst., 1935, 32 145
- The advantages and uses of the elastic bag in the management of labor H L WOODWARD Ohio State M. J., 1935, 31 670
- Some new observations on labor in cases of permanent detachment of the normally located placenta J E BAZÁN and F A URANGA IMAZ Bol. Soc. de obst. y ginec. de Buenos Aires, 1935, 14 273
- The treatment of the persistent occiput posterior position by 180 degree manual rotation of the occiput S S ROSENFELD Am. J. Obst. & Gynec., 1935, 30 364
- Myomectomy and delivery P PASTIELS Bruxelles méd., 1935, 15 1177
- The forceps operation A J WRIGLEY Lancet, 1935, 229 702 [56]
- The indications for cesarean section in breech presentation J ANDÉRODIAS and G PÉRY Gynec. et obst., 1935, 32 108
- A case of chondrodystrophic nanism with delivery by cesarean section L A BALASQUIDE Am. J. Obst. & Gynec., 1935, 30 430
- A critical study of the indications and technique of cesarean section in the presence of fever during labor M HENKEL. Zentralbl. f. Gynaek., 1935, p 1267
- Cesarean section with incision in the longitudinal axis of the uterus G VON BUD Monatsschr. f. Geburtsh. u. Gynaek., 1934, 98 210
- Results and indications of 180 cesarean sections R KELLER and E BOHLER. Gynecologie, 1935 34 412
- Massive collapse of the lung following cesarean section. G W GUSTAFSON Am. J. Obst. & Gynec., 1935, 30 425
- A study of the mortality of premature infants delivered by cesarean section E F ROBB Minnesota Med., 1935, 18 590
- Manual separation of the placenta and digital examination of the postpartum uterus M KARLIN Med. Welt, 1935, p 924
- Severe intracranial hemorrhage occurring in children following normal delivery and cesarean section without complications A EBERGÉNYI Jahrb. f. Kinderh., 1935, 144 291
- Some failures of operative obstetrics in the home, the maternal and fetal prognosis A CHIMENTI Clin. obstet., 1935, 37 473

- Attempts to diminish the pain of normal labor F KOVÁCS Orvosi hetil., 1935, p 687
- Anesthesia for childbirth J S LUNDY and R. M. TOVELL. Northwest Med., 1935, 34 346
- Obstetrical anesthesia H BUSCHBECK. Schmerz, 1935, 8 47
- Noctonon-hyoscine twilight sleep, a review of thirty cases A M CLAYE J. Obst. & Gynec. Brit. Emp., 1935, 42 636 [57]

Puerperium and Its Complications

- A study of the blood choline in a normal puerperium. G MORRA. Ginecologia, 1935, 1 904
- The blood nitrogen curve in the normal puerperium. ALBANESE Arch. di ostet. e ginec., 1935, 42 437
- The blood suprarenalin in the physiological and pathological puerperium, and its possible relationship to the blood groups ALBANESE Arch. di ostet. e ginec., 1935, 42 505
- A case of polygalactia. D SALTZEFF Ž. Akuš., 1935, 46 146
- Post-partum hemorrhage L A CALATAYUD Med. rev. mexicana, 1935, 16 443
- A general consideration of puerperal eclampsia G NOLENS Bruxelles-méd., 1935, 15 1238
- Suppurative puerperal oophoritis P TRILLAT, L. MICHOV, and M DARGENT Gynec. et obst., 1935, 32 116 [57]
- Local intraparenchymal vaccination by Spirito's method in puerperal infection L PICCONE Ginecologia, 1935, 1 714. [58]
- Cauterization and blood transfusion for puerperal infections H. NEX Fortschr. d. Therap., 1935, 11 287
- The Terrier method of treating puerperal and post-operative phlebitis, a bibliographic study and personal contribution. BOLLÉ Arch. di ostet. e ginec., 1935, 42 475

Newborn

- Icterus neonatorum N BOOK Canadian M. Ass. J., 1935, 33 269
- Traumatic ossifying perosis of the newborn S T SNEDECOR, R. E. KNAPP, and H. B. WILSON Surg., Gynec. & Obst., 1935, 61 385

Miscellaneous

- Obstetrics in general practice. E O ASHER J. Indiana State M. Ass., 1935, 28 422
- Blood indican in pregnancy, labor, and the puerperium. R. A. FERRARI. Bol. Soc. de obst. y ginec. de Buenos Aires, 1935, 14 259
- Blood transfusion in obstetrics, case reports E LÓPEZ y FONT Med. rev. mexicana, 1935, 16 448
- The sex-prediction test of Dorn and Sugarman W T POMMERENKE and W C. ROGERS Am. J. Obst. & Gynec., 1935, 30 380
- A lithopedion and dermoid cyst. A J PAVLOVSKY, R. E. MERZAROLI, and C DE MORO GUEVARA Bol. Soc. de obst. y ginec. de Buenos Aires, 1935, 14 275
- An instance of like monsters in successive pregnancies M G DERBRUCKE Am. J. Obst. & Gynec., 1935, 30 429
- The early diagnosis of chorionepithelioma A. MATHIEU and A. PALMER. Surg., Gynec. & Obst., 1935, 61 336
- The behavior of the anterior lobe of the pituitary in cases of chorionepithelioma T WICZYŃSKI. Ginek. polska, 1935, 14 1

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

- Air injections to demonstrate the adrenals by X ray
G. P. CARROLL. *J Urol* 1935, 34, 236
- The role of sodium in adrenal insufficiency. R. F. LORA,
D. W. ATCHLEY and J. STARK. *J Am M Ass* 1935, 104,
5149 [59]
- Complications of nephrectomy based on 120 new
superinfected kidneys in the service of Oppel. M. ARAN-
KOWA. *Lyon chir* 1935, 3, 54
- The lymphatics of the normal kidney. G. JAKEMET
J d'uro 1935, 40, 97
- The urea clearance test compared with other renal-
function tests in urology. R. W. I. UNGER and J. L.
McCOLLUM. *Canadian M Ass J* 1935, 33, 251
- A study of renal function in relation to urological surgery.
L. PIRAVI. *Arch ital chir* 1935, 35, 905 [60]
- Pyelography. BENGOLEA. *Rev y trab Soc de ciruj de*
Buenos Aires, 1935, 19, 64
- Palpation of the kidney in the sitting position. T. T.
KRAMER. *Venst Kler* 1935, 37, 31
- The anatomy and diagnosis of double kidney. T. A.
JONES. *J d'uro* 1935, 40, 38
- Double kidney and bifurcation of the ureter. R. OR-
NOTTO. V. NACI and P. UNGER. *Rev Assoc med*
argent 1935, 49, 831
- Pelvic kidney with ureter opening near the uterine
orifice. E. M. VAN H. ELK. *Am J Roentgenol* 1935,
34, 503
- Nephroptosis. HELPER. *Venst Kler* 1935, 37, 35
- A study of the capillaries of the renal cortex: the behavior
of these capillaries in atrophic processes. T. CALUARI.
Arch ital di urol 1935, 2, 692
- Hypoplasia of the kidney. R. H. HEDDER and C. W.
WILLIAMS. *Surg Gynec & Obst* 1935, 61, 306
- Hypoplasia of the kidney. J. WELTANDT. *Wochschr Jtschr*
v. Geseh. 1935, p. 2368
- The pathogenesis of hydronephrosis due to abnormal
renal vessels. H. BLANC and A. BOUQUET. *J d'uro*
med et chir 1935, 40, 3
- A case of hydronephrosis with double ureters, re-
plantation into the bladder. J. G. YATES-BELL. *Brit J*
Urol 1935, 7, 270
- Resection of the kidney and renal pelvis for marked
hydronephrosis due to a vascular anomaly. R. RESE.
Arch ital di urol 1935, 64
- Ureteropyelostomy for hydronephrosis. A new op-
erative technique. A preliminary report. B. LORAN.
J Urol 1935, 34, 222
- A case of heminephrectomy for hematuria. S. SCHER.
Brit J Urol 1935, 7, 264
- The mechanism of action and the early and late results
of decapsulation in the treatment of hemorrhagic nephritis.
P. R. COLELLA. *Arch ital di urol* 1935, 2, 685 [60]
- Tuberculosis of the kidney in childhood. G. L. ANDERSON.
Brit M J 1935, 953
- Tuberculous meningitis following nephrectomy for
tuberculosis. A case report with a review of the literature.
J. H. T. VAN J. *Urol* 1935, 34, 6
- Anterior perinephric abscess. C. W. COYNER, Jr. *Ann*
Surg 1935, 101, 478
- Renal calculi in an infant complicated by perinephric
abscess and subcapsular hemorrhage. H. A. SCHWARTZ.
Am J Dis Child 1935, 50, 696
- Bilateral urinary calculi. H. P. WILSON and W. H. WATTS.
Brit J Urol 1935, 7, 35

- The cystic kidney. J. F. GREENGLASS. *J Urol* 1935, 34,
507
- Renal adenoma. J. CARTER. *Brit J Urol* 1935, 7, 280
- Wilms' tumor. W. B. COLEY. *Am J Surg* 1935, 50, 463
- Cancer of the kidney. A. MARINO. *Rev mexicana de*
ciruj spec y clin 1935, 3, 451
- Clinical results in carcinoma of the kidney bladder and
prostate. G. von LITZ. *Ztschr f urol Chir* 1935, 4,
53
- Phenylhydrazinemia of the kidney in an adult. J. B.
EISENBERG. *J Urol* 1935, 34, 105
- Notes on ectopic ureter in the female, with a case report.
K. KIRKLAND. *Med J Australia*, 1935, 2, 28
- Idiopathic uterine apoplexy. H. KINCKEL. *Zentralbl f*
Chir 1935, p. 1554
- Uterine structures and their treatment. B. M. H. VAN
PENNYNGEN. *M J* 1935, 33, 953
- Extravasation of urine following spontaneous rupture of the
ureteropelvic junction. C. FRIEDMAN. *Brit J Urol*
1935, 7, 307
- Dilatation of the left ureter with pyro-ureter and pyro-
nephrosis, contracted right kidney. F. STROCCANI. *Arch*
ital di urol 1935, 399
- Secondary tumors of the ureter various types, with
report of two cases. B. R. WOODHURY. *J Am M Ass*
1935, 105, 93

Bladder, Urethra, and Penis

- Pelvic fractures with injuries of the bladder and urethra.
P. D. SOLOVYOV. *Venst Kler* 1935, 37, 36
- Six cases of chronic retention of urine in women caused
by dyssynergia of the bladder neck. O. VAN HOUTEN. *Proc*
Roy Soc Med, Lond 1935, 28, 51
- Divertercile of the bladder. A. H. PRACOCK. *Northwest*
Med 1935, 34, 315
- Rupture of the urinary bladder. L. BENNETT. *Am J*
Surg 1935, 50, 450
- The treatment of the atonic bladder. W. F. BELLACH.
and G. J. THORNTON. *Surg Gynec & Obst* 1935, 61,
379
- Pachydermia vesicae. A. DIAMANTIS. *J d'uro* 1935, 40,
35
- Cystitis—a clinical consideration. E. O. SCHWARTZ.
J Med Cincinnati 1935, 46, 560
- Fatty infiltration of the urinary bladder with spon-
taneous rupture. O. SAPIR and J. J. SAPIR. *Am J*
Surg 1935, 50, 263 [60]
- Some aspects of the treatment of carcinoma of the
bladder. W. C. QUINCY. *New England J Med* 1935,
213, 490
- The treatment of carcinoma of the bladder with radon
tubes. A. B. FRIEDMAN. *Radiology* 1935, 3, 170
- Total cystectomy and urethral transplantsations as es-
sential conditions of the bladder. R. M. KRAMER. *J Am*
M Ass 1935, 105, 25
- Congenital valvular obstruction of the posterior urethra.
H. E. LAWRENCE and R. RALL. *J Urol* 1935, 34, 54
- Congenital valves of the posterior urethra. V. S. COV-
SKILLER and J. G. MERRILL. *J Urol* 1935, 34, 268
- The treatment of urethral strictures. DREWEITZ. *Zentralbl f*
Chir 1935, p. 376
- Primary tumor of the female urethra with metastasis to
each ureter. E. C. BRAW. *J Urol* 1935, 34, 44
- A further report on the cure of hypospadias and ep-
ispadias. A. B. CHITT. *J Urol* 1935, 34, 978

Genital Organs

- The anatomy of the prostate and vesical neck. R E VAN DUZEN South M J, 1935, 28 785
- X-ray and autopsy study of anatomical changes of the upper urinary tract in patients with obstructing prostates G C PRATHER and M L BRODNY New England J Med, 1935, 213 457
- The treatment of prostatic obstruction G G SMITH Canadian M Ass J, 1935, 33 262
- Old and new methods in the treatment of prostatic hypertrophy HECKENBACH Muenchen med Wchnschr, 1935, 2 1097
- A new method for the treatment of gonorrheal prostatitis S P GUMARAES Folha med., 1935, 16 359
- Leiomyoma of the prostate gland F S PATCH and L J RHEA Brit. J Urol, 1935, 7 213
- The present status of the prostate problem with particular regard to the operative technique F VOELCKER 59 Tag d. deutsch Ges f. Chir., Berlin, 1935 [61]
- Technical questions in prostatectomy A MELLI Ztschr f. urol Chir, 1935, 41 133
- The sequelæ and complications following suprapubic prostatectomy UTEAU and GRÉPINET J d'urol méd. et chir, 1935, 40 124
- Observations on the emptying of the vasa deferentia and seminal vesicles S F WILHELM J Urol, 1935, 34 284
- The rationale of epididymovasectomy in genital tuberculosis H E CAMPBELL J Urol, 1935, 34 134 [62]
- Tumor of the left testis and its surgical treatment D TADDEI Rassegna internaz. di clin. e terap., 1935, 16 740

Miscellaneous

- The necessity for both excretory and retrograde urography in certain cases D N EISENDRATH Brit. J Urol, 1935, 7 124 [62]
- The uses of sodium ortho-iodo-hippurate in urography K. HERITAGE Brit. J Urol 1935, 7 255
- The physiology of the male genitalia H BOEMINGHAUS Med. Welt, 1935, p 815
- Urinary incontinence D K ROSE J. Missouri State M Ass, 1935, 32 363
- Experimental researches of the pathogenesis of eosinophilia and urinary retention. F D'ALFONSO Arch. ital. di urol, 1935, 12 665
- A tube for the collection of urine under aseptic conditions S LITT Am. J. Obst. & Gynec., 1935, 30 433
- Recent developments in combating infections of the urinary tract. A. L. CLARK. Am. J. Surg., 1935, 29 354
- Microscopic diagnosis of acute gonorrhea A QUEVEDO Med. rev. mexicana, 1935, 16 407
- Neosarsphenamine in so-called sterile pyuria. W T BRIGGS J. Urol, 1935, 34 230
- The etiology of urinary calculus H. P. WINSBURY-WHITE Brit. J. Urol, 1935, 7 103 [63]
- Lymphogranuloma inguinale J A BOURGOUTIN Canadian M Ass J, 1935, 33 276
- Anorectal lymphogranuloma A KAISER. 1935 Freiburg i. Br., Dissertation
- The value of the urea-clearance test in urinary surgery E W RICHES and J D ROBERTSON Brit. J. Surg., 1935, 23 128 [63]

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Bone growth and repair D B PHEMISTER. Ann Surg, 1935, 102 261 [64]
- Postural deformities in adolescence. P WILES Practitioner, 1935, 135 318
- Physiological postural deformities in contrast to pathological postural deformities C E BADGLEY J. Michigan State M. Soc., 1935, 34 469
- Bone changes of leukemia in children J M BATY and E C VOGT Am. J. Roentgenol., 1935, 34 310
- An attempt at a general classification of diseases of bone R. LEBICHE and A. POLICARD J. de chir, 1935, 46 161 [65]
- Osteopetiolosis I S HIRSCH Radiology, 1935, 25 349
- Paget's disease as an associated finding T. BARSONY and K. WINKLER Orvosi hetil, 1935, p 149
- Osteomyelitis J J KIRSCHENMANN Am. J. Surg., 1935, 29 465
- Lipoid granulomatosis of the bones O. MARÓTTOLI Bol. Soc. de cirug. de Rosario, 1935, 2 139
- Acute osteomyelitis and its biological treatment. J. MÉNDEZ and L. G. GRET Semana méd., 1935, 42 310
- Roentgen differentiation of osteomyelitis and metastatic bone tumors E. L. JENKINSON Illinois M. J., 1935, 68 255
- Multiple myeloma, a case report W. R. MINNICH J. Med. Ass. Georgia, 1935, 24 332
- Roentgen diagnosis of metastases in the bones R. B. ENGELSTAD Norsk. Mag. f. Lægevidensk., 1935, 96 608
- Giant cell bone tumor of costal origin. P. C. SAMSON and C. HAIGHT J. Am. M. Ass., 1935, 105 1020

- Biological amputation. M. ZUR VERTH. Muenchen. med. Wchnschr., 1935, 1 525
- Osteochondritis dissecans and epiphyseal necrosis A. NIELSEN Verhandl. d. jütland. med. Ges., 1934, p 47 Hosp.-Tid., 1935
- Chronic joint conditions following static changes G. BRANDT Med. Klin., 1935, 1 801
- Hypertrophic osteo-arthritis E. L. RYPINS Radiology, 1935, 25 289
- Generalized hypertrophic pulmonary osteo-arthritis, an experimental and clinical study, with a report of two cases E. L. COMPERE, W. E. ADAMS, and C. L. COMPERE Surg., Gynec. & Obst., 1935, 61 312
- Gastric acidity in chronic arthritis E. F. HARTUNG and O. STEINBROCKER. Ann. Int. Med., 1935, 9 252
- The relation between the growth of bone and tuberculous osteo-arthritis HAVRANEK. Rev. d'orthop., 1935, 42 323 [65]
- The development of infections in joint cavities in the presence of abscess in the surrounding tissues E. BAROUBEK Rozhl. Chir. a Gynaec. Chir., 1935, 14 87
- Traumatic joint tuberculosis? A. HOFBAUER-FLATZECK. Tuberkulose, 1935, 15 201
- The value of three important factors in the prognosis of osteo-articular tuberculosis M. PALTRINIERI. Chir. d'organi di movimento, 1935, 21 139
- Misdiagnosis of pains in the shoulder B. W. ERCKLENTZ Deutsche med. Wchnschr., 1935, 2 1155
- Hydatid disease of the scapula E. L. VILA Bol. y trab. Soc. de cirug. de Buenos Aires, 1935, 19 491
- A contribution on hydatid disease of the scapula. O. IVANISSEVICH Bol. y trab. Soc. de cirug. de Buenos Aires, 1935, 19 537

- Muscular fibrosis at the scapular insertion of the serratus anterior muscle. II. BRILLIANTO. Bull et mémoires Soc d'Chirurgiens de Par 1935, 27, 366.
- Clavicular dysostosis in the newborn. J B HERRICK. Brit J Radiol 1935, 8, 588.
- Acute osteomyelitis of the clavicle: total subperiosteal resection, rapid regeneration. R FOVIAIR and R MATTRE. Rev d'Orthop 1935, 42, 299.
- Osteogenic sarcoma of the clavicle treated with radium and fever therapy. H P DOON. Radiology 1935, 25, 353.
- Ectromelia of the lower extremities and congenital amputation of the upper extremities. PIRIKOFF and GOTT. LUNZ. Bull et mémoires Soc méd d'Chir 1935, 61, 973.
- Transverse rupture of the biceps brachii. II. STURROCK. Am J Surg 1935, 29, 47.
- The diagnosis of joint disease in the elbow. J OCHS-SMITH. Zentralbl f Chir 1935, p 1549.
- Stenosing tendovaginitis at the radial styloid. W M BROWN. Brit M J 1935, 2, 318.
- Stenosing tendovaginitis at the radial styloid. A IORDAN and P TORDON. Chirurg Orthop y Traumatol 1935, 3, 227.
- Madelung's deformity. S BARNUM. Lancet, 1935, 229, 418.
- Volaris contracture. S G JONES. J Bone & Joint Surg 1935, 17, 643. [65]
- Deep-seated contracture. E SIVARDE. Clin chir 1935, 1, 581.
- Chondroma and sarcomatous degeneration of an enchondroma of the thumb. O RABIN. Deutsche Zeitsch f Chir 1935, 243, 81.
- Rupture of tendons. A report of four cases of latent rupture of the tendons of the extensor pollicis longus. J H BRYAN. West J Surg Obst & Gynec 1935, 43, 443.
- Primary costal osteosarcoma. H R ROSS. Ann Int Med 1935, 9, 300.
- Congenital deformities and developmental disturbances of the vertebrae. S V BAKER. 1933. Berghen, J W Lides. Baktrikken.
- The significance of a wedge shaped deformity of the body of the vertebrae. G W GALT. Radiology 1935, 3, 39.
- Postural defects and scoliosis. Loss of elasticity before and after orthopedic exercises. H WERNER. Arch f Orthop Chir 1935, 31, 322.
- Scoliosis associated with von Recklinghausen's disease, treated by bone grafting. N CAMPBELL. Proc Roy Soc Med Lond 1935, 28, 268.
- The cure of scoliosis. II. WERNER. Münchener med Wochenschr 1935, 677.
- Injuries to the anterior portions of the bodies of the vertebrae. F SCHMIDT. Zeitsch f orthop Chir 1935, 63, 27.
- Rupture or rupture of the intervertebral disc into the spinal canal. A report of thirty-four cases. W J MERRICK and J B ARTH. New England J Med 1935, 213, 381. [66]
- Early spondylolisthesis, case report. R M CARTER. Wisconsin M J 1935, 34, 31.
- Surgical cure of very early case of spondylolisthesis. N CAMPBELL. Proc Roy Soc Med Lond 1935, 28, 260.
- A case of spondylitis deformans in the cervical vertebrae, with invagination of the esophagus and trachea. G HODGKINSON and H HILLIARD. Acta oto-laryngol 1935, 30.
- Rheumatic spondylitis. S LYON. Presse méd Par 1935, 42, 349.
- Infectious cervical spondylitis following furuncle of the face and erysipelas of the leg. C I. UNGER and L. DRACONIA. Bull et mémoires Soc méd d'hop de Par 1935, 5, 296.
- Spondylitis ankylopoietica of Bechterew. C. HODGKINSON. Arch f Orthop Chir 1935, 35, 277.
- Osteomyelitis of the vertebrae. V. PATES. Roentl Chir Orthop. C. Chir 1935, 14, 229.
- Degenerative diseases of the vertebrae. R. KROENKE. Wien klin Wochenschr 1935, 1, 671.
- A case of congenital short neck showing the Klippel-Fiel syndrome. W F FOWLER. Edinburgh M J 1935, 42, 4.
- The morbid anatomy of cases of the thoracic spine in relation to treatment. H J. HODGKINSON. Lancet, 1935, 229, 253.
- Cartilage tumor of the spine, with the report of a case. G W. MERRICK. Am J Roentgenol 1935, 14, 585.
- Primary acute osteomyelitis of the pelvis. C. MOURNO. Hémorragie fulmineante de l'os iliaque. 1935, 15: 812.
- A case of coxa vara infantilis. C. JORDAN. Wiener Med Woch 1935, 149, 491.
- Defining arthritis of the hip and transverse coxa vara. P. STARR. Rev Assoc med argent 1935, 49, 815.
- Tuberculosis of the hip joint in children. Glasgow M J 1935, 124, 105.
- An rhinoceros cyst of the psoas muscle. G. BLOCH. Zentralbl f Chir 1935, p 398.
- Fibrosarcoma of the tendon of the psoas minor muscle. P. L. MERRICK. Ann d'hist path 1935, 12, 847.
- Osteogenic sarcoma of the femur. A. J. CARRIO, O. CORREIA, and O. MARIN. Bol y trab Soc de cirug de Buenos Aires, 1935, 9, 51.
- Osteogenic sarcoma of the femur. CALCADO. Bol y trab Soc de cirug de Buenos Aires, 1935, 10, 640.
- Rupture of the quadriceps tendon. D. BLOCH and M. F. SLOAN. Am J Surg 1935, 29, 470.
- A contribution to the study of suprapatellar rupture of the tendon of the quadriceps femoris muscle. C. LIT. R. RINGIER. Ann d'hist path 1935, 12, 888. [66]
- Congenital changes of the external osseous mass in the case of atrophic knee. F. DUBOIS. Arch f Orthop Chir 1935, 33.
- Internal derangement of the knee joint. W. R. BARNUM. J Bone & Joint Surg 1935, 17, 605. [67]
- The occurrence of anterior tears. O. H. DUBOIS. Nederl Tijdschr Geneesk 1935, p 173.
- The regeneration of menisci of the knee. F. MARX. Zentralbl f Chir 1935, p 773.
- Rupture of the menisci of the calf. O. WITTMANN. Münchener med Wochenschr 1935, 904.
- Acute osteomyelitis of the os calcis. E. L. OTTOLING and M. DELUCA. Bol y trab Soc de cirug de Buenos Aires 1935, 10, 576.
- Acute osteomyelitis of the os calcis. GARCIA, DUBOIS, and FERRER. Bol y trab Soc de cirug de Buenos Aires, 1935, 9, 63.
- The problem of flat foot. M. ZOR. Vjesnik Medicinski f Univerzitet 1935, 42, 22.
- Hammertoes and transverse flat foot. A. SOKL. Zeitsch f Orthop Chir 1935, 63, 54.
- A perches amputing toe. E. GONZALEZ. Zeitsch f Orthop Chir 1935, 43, 268.
- Surgery of the Bones, Joints, Muscles, Tendons, Etc.
- Infantile paralysis and its surgical treatment. J. RAY. Kriegerhefte 1935, 8, 17.
- The prophylactic treatment of deformities due to poliomyelitis. O. K. MANNING. Rev méd d. Roum 1935, 25, 606.
- The treatment of osteomyelitis in children. M. LARON. Arch f Klin Chir 1935, 18, 646.

The treatment of chronic rheumatoid arthritis, further observations on the use of streptococcal vaccine. C W WAINWRIGHT *Ann Int. Med.*, 1935, 9 245

Artificial fever therapy of gonorrheal arthritis W W KENDALL, W W WEBB, and W M SIMPSON *Am J Surg.*, 1935, 29 428

The mobilization of fibrous ankylosis Prophylaxis of postoperative ankylosis K LENGGENHAGER *Schweiz med Wchnschr.*, 1935, 1 581

The surgery of bone tumors D B PHFMISTFR. Illinois M J 1935, 68 258

Amputation J I TARAF. *Cirug ortop y traumatol.*, 1935, 3 97

Amputation without tourniquet K MERMINGAS *Zentralbl f Chir.*, 1935, p 1810

Stabilization of the acromioclavicular joint C P G WAKELEY *Lancet*, 1935, 220 708

An incision for the exposure of the ventral surface of the distal end of the radius and its related structures B LIPSHUTZ *Ann Surg.*, 1935, 102 475

The correction of paralytic instability of the pelvis C L LOWMAN *Am J Surg.*, 1935, 29 420

Plastic operations on the acetabulum WALTER. *Zentralbl f Chir.*, 1935 p 1313

The Ober operation for sciatica H W CAVE. *Ann Surg.*, 1935, 102 357

The conservative treatment of incarcerated meniscus of the knee W MOL. *Nederl Tijdschr v Geneesk.*, 1935, p 3357

Observations on the operative treatment of non-specific injuries to the knee. W HETZAR *Deutsche Ztschr f Chir.*, 1935 245 231

The end-results of leg lengthening G B STEPHENSON and H A DURNHAM *South. M J.*, 1935, 28 818

A new method of covering the stump after amputation of the leg G B MACAGGI *Arch ital di chir.*, 1935, 40 28 [68]

A new insole in the after-care of club-feet F SCHMIDT *Zentralbl f Chir.*, 1935, p 1576

The dangers of forceful treatment of congenital club-foot. F SCHMIDT *Ztschr f orthop Chir.*, 1935, 63 128

Fractures and Dislocations

Some fundamentals in the treatment of war fractures BASTOS and D'HARCOURT *Prog de la clin.*, Madrid 1935, 23 528

Indications for the open and closed treatment of open fractures D'HARCOURT and PRINEDA *Prog de la clin.*, Madrid, 1935, 23 534

Closed mobilization of ankylosed joints MAGNUS *Monatsschr f Unfallheilk.*, 1935, 42 341

Protection of a body cast in an infant. D KUPERSTEIN *Am J Surg.*, 1935, 29 469

Osteosynthesis with a horn plate D P CACERES *Rev mexicana de cirug, ginec y cancer.*, 1935, 3 511

Osteogenesis in fractures and in inflammatory processes of the bones L ZENO *Rev de orthop y traumatol.*, 1935, 4 327

The treatment of habitual dislocation of the shoulder by the Nicola technique B FREJKA *Rozhl Chir a Gynaek. C. chir.*, 1935, 14 227

Operative treatment of recurrent dislocation of the shoulder R. PFEIFFER *Ztschr f orthop Chir.*, 1935, 63 205

Instruments for transarticular plastic operations for habitual dislocation of the shoulder C HENSCHEN *Helvet. med Acta.*, 1935, 2 221

The Comoli syndrome in fracture of the scapula E DORNI *Chir d organi di movimento*, 1935 21 189

Methods of treating clavicular fractures V SCHUPPLER *Arch. f orthop Chir.*, 1935, 35 347

The treatment of fracture of the clavicle W HAFEMANN *Med Welt*, 1935, p 1040

The results of the treatment of fractures of the clavicle V SCHUPPLER *Arch f orthop Chir.*, 1935, 35 373

Supracondylar fractures of the elbow and their complications M O HENRI *Minnesota Med.*, 1935, 18 597

The results of treatment for dislocation of the elbow in the Leipzig University Surgical Clinic G SCHNEIDER. 1934 Leipzig, Dissertation

Fractures of both bones of the forearm J HOWORTH *Pennsylvania M J*, 1935, 38 064.

Types of fractures of the lower end of the radius and ulna W EHALT *Arch f orthop Chir.*, 1935, 35 397

Colles' fractures A R WILEY *J Oklahoma State M Ass.*, 1935, 28 335

The treatment of fractures of the radius G MAGNUS *Muenchen med Wchnschr.*, 1935, 1 1024

The results of treatment of fracture of the lower end of the radius W EHALT *Arch f orthop Chir.*, 1935, 35 443

The cause of irreducibility of palmar metacarpal phalangeal dislocation of the index finger S SCHEGGI *Chir d organi di movimento*, 1935, 21 142

A further contribution on isolated fracture of the first rib P HUBER *Zentralbl f Chir.*, 1935, p 1773

Vertebral fractures and dislocations II Fractures of the arch, of the type of spondylolysis and spondylolisthesis, and their effect on the spinal cord L BOEHLER. *Chirurg.*, 1935, 7 477

The pathology and treatment of fractures and dislocations of the vertebrae L BOEHLER. *Wien med Wchnschr.*, 1935, 2 749

The treatment of vertebral fractures G ODELBORG-JOHNSON *Svenska Lakartidningen*, 1935, p 942

The treatment of vertebral fractures S LINDVALL. *Svenska Lakartidningen*, 1935, p 946

Fractures of the transverse processes of the vertebrae T VOECKLER. *Ztschr f aerzt. Fortbild.*, 1935, 32 341

The treatment of fractures of the pelvis and their complications G C WEIL, J P HENRI, and H W RUSBRIDGE *Pennsylvania M J.*, 1935, 38 042

So-called spontaneous dislocation of the hip HARRENSTEIN. *Nederl Tijdschr v Geneesk.*, 1935, p 3487

The present status of therapy for dislocation of the hip A LORENZ *Ztschr f orthop Chir.*, 1935, 63 93

A new technique in the treatment of congenital dislocation of the hip V C GIRARDI *Rev de orthop y traumatol.*, 1935, 4 373

Early treatment of congenital dislocation of the hip S SCHEGGI *Chir d organi di movimento*, 1935, 21 137

The success of the treatment of so-called congenital dislocation of the hip GAUGELE and KIENZLE. *Deutsche Ztschr f Chir.*, 1935, 245 214.

Subluxation of the femur associated with tuberculosis of the hip A FARKAS *Chir d. organi di movimento*, 1935, 21 102

Fractures of the thigh in warfare BASTOS and GRANDA *Prog de la clin.*, Madrid, 1935, 23 539

Fractures of the neck of the femur E W HEY GROVES *Brit. M J.*, 1935, 2 491

Concealed fracture of the neck of the femur V AALKJAER *Beitr z klin. Chir.*, 1935, 161 548

Clinical notes from the College of Medicine Russell's traction for femoral fractures F E HAMBRECHT *J Iowa State M Soc.*, 1935, 25 496

Subcutaneous spike fixation of fresh fractures of the neck of the femur F J GAENSLER *J Bone & Joint Surg.*, 1935, 17 739 [68]

Experiences with the Smith-Petersen nail in fractures of the neck of the femur W. GERRIT BOER & K. H. CHIR 1935, 162, 3

The operative treatment of fractures of the neck of the femur F. FRIEDLÄNDER Wien klin Wochenschr 1935, 1 844

Surgical treatment of fractures of the leg J. VIKARIÖSKY Rev de chir y traumatol 1935, 4, 3, 5

Uncomplicated inferior marginal fractures of the tibia The uncomplicated anterolateral marginal fracture E. LOTCA Ann ital chir 1935, 4, 317

Orthopedics in General

Is the pharynx responsible for the development of ischiorectal contracture? R. SCHERER, SCHWEDT and V. SCHWEDT 1935, 11, 579

Adjustments during four years of patients handicapped by polyosteoarthritis E. H. BARNES New England J Med 1935, 213, 563

The orthopedic corset; its indications, technique of use, and results F. G. DUNN and I. P. FAVORIS Arch Fac de med de Zaragoza, 1934-35, 3, 247

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Non-operative treatment of peripheral vascular diseases M. R. REID and L. G. HERRMANN Ann Surg 1935, 1, 2, 697

The treatment of peripheral vascular disease by means of suction and pressure E. M. LAMSON and L. H. HERRICK Ann Int Med 1935, 9, 404

The rôle of surgery in certain vascular diseases of the extremities A. E. COATES Med J Australia, 1935, 233

Peripheral vascular diseases A review of some of the recent literature, with a critical review of the surgical treatment O. W. SCHEFFNER and G. DE TARKA Arch Int Med 1935, 95, 130

Experimental peripheral gangrene E. J. MCGRAW J Am M Ass 1935, 105, 654

Gangrene of the lower extremities H. P. JACOBSON and H. S. PETER Med Rec New York, 1935, 142, 260

Amputation following Pirquet treatment B. M. BERKOWITZ Ann Surg 1935, 103, 464

Abnormal dorsal course of the greater saphenous vein associated with abnormality of the inferior vena cava H. POTTER Zischl f Anat 1935, 104, 456

The injection of varicose veins during pregnancy G. R. CHESTNUT and A. E. PETER Ann f Obst & Gynec 1935, 20, 302

An air embolus following the injection treatment of varicose veins K. SCHERER Deutsche Zischl f geruchl Med 1935, 25, 82

The subclavian treatment of varicose veins by ligation, division, and injection of the distal segment M. G. GILLESPIE Minnesota Med 1935, 2, 39

Four principles of operations on varicose veins S. ROSENBERG Med Klin 1935, 443

The treatment of the recurrent varicose ulcer E. A. FOWLER New England J Med 1935, 3, 450

Arteriovenous anastomosis of the left subclavian artery O. IVANOVICH Bol y trab Soc de ciruj de Buenos Aires, 1935, 9, 686

Arteriovenous anastomosis of the external carotid artery arterio-encephalography J. LARJANCO Acta chirurg Scand 1935, 77, 90

The study of the mechanism of cardiac disturbances in arteriovenous anastomosis N. KISTERNIK Presse med Par 1935, 43, 379

Dilatant arteries of the subclavian artery due to cervical rib, resection of the rib recovery J. DEER and R. L. RODCANTOLIATA Bol y trab Soc de ciruj de Buenos Aires, 1935, 9, 90

The question of obliterating arteries R. LERCHER Med Welt, 1935, p. 85

The pathological physiology of obliterative pyemic endarteritis I. NIKOLAY Roshl Chir y Gynak C chir 1935, 14, 259

The surgical treatment of obliterative endarteritis of the extremities J. ALICE and A. S. I. CRONIN Scand med 1935, 43, 307

The indications for amputation in progressive arterial obliteration of the lower extremities L. S. MCKITTRICK Ann Surg 1935, 103, 342

Paravertebral nodosa (necrotizing paravertebralitis) in childhood with meningeal involvement Report of a case with a study of the pathological findings L. KRATZKE, M. ROSENTHAL, and E. H. LOEWENBERG Am J M Sc 1935, 90, 306

The arteriographic comparison of thrombo-embolic obstructions and arterioendosclerosis E. A. EDWARDS Mex England J Med 1935, 2, 476

The clinical picture of infectious distal thromboses E. KIRKE MOSENFELDER and W. SCHWEDT 1935, 1, 770

Embolus of the abdominal aorta A. M. ZILLAGO and A. A. COVARR Scand med 1935, 43, 437

The technique of arterial embolotherapy C. HINCHERVELT Helvet med Acta, 1935, 2, 6

Blood Transfusion

An atypical hemorrhagic diathesis E. CYRIL Hopf Tid, 1935, p. 299

The technique and dangers of blood transfusion O. WINTERSTERN Helvet med Acta, 1935, 2, 3

The use of conserved standard erythrocytes for agglutination N. T. BURTON and T. G. SCHWARTZ Vests Khar 1935, 27, 16

Emergency blood transfusion L. MAYER Brunschmidt 1935, 5, 938

Experimental control and theoretical considerations of unreciprocal transfusion F. AMANTIA Publica Roma, 1935, 43, 100 and 335

A hemolytic blood-transfusion reaction with oblique H. G. MCCARTHERY J Am M Ass 1935, 105, 452

Report of the blood transfusion service at the University of Colorado School of Medicine and Hospitals R. H. JONES Colorado Med 1935, 1, 714

Lymph Glands and Lymphatic Vessels

The treatment of tuberculosis adenitis by intralymphatic injection of formalized chlorophyll in ether solution M. MOORE, MASON, and ROBERT Presse med Par 1935, 43, 372

Phlebotomy of the lymph nodes treated by the X-rays O. MARTINOFF Radiol med 1935, 27, 844

SURGICAL TECHNIQUE

Operative Surgery and Technique,
Postoperative Treatment

- Pre-operative treatment. J SCHNITZLER. *Wien klin Wchnsch*, 1935, 2 899
- Studies and experiences on the use of the alcoholic solution of formalin for disinfection of the operative field K DAUBENSPECK *Arch f klin Chir*, 1935, 182 201
- Bacteriophage therapy R LAMPERT, F F BOYCE, and F M McFETRIDGE *Am J Surg*, 1935, 29 436
- The influence of anesthesia and operation upon the number and function of the leucocytes H EUFFNER and W KILTZ *Monatsschr f Geburtsh u Gynaek*, 1935, 99 279 [72]
- The nasal catheter, its multiple uses T MARTINI and R. E CURTCHET *Semana méd*, 1935, 42 462
- The immediate transplantation of bone cartilage, and soft tissues in accident cases W W CARTER. *Laryngoscope*, 1935, 45 730
- The treatment of large cutaneous defects W BRAUN *Monatsschr f Unfallheilk*, 1935, 42 339
- The repair of surface defects from burns and other causes with thick split skin grafts J B BROWN, V P BLAIR, and L T BYARS *South M J*, 1935, 28 408, 520 [72]
- Transverse clefts of the face and their surgical treatment. H LOBIEN 1934 Koenigsberg i Pr, Dissertation
- The treatment of acute abscess with peptonized water VALCANERAS *Arch de med, cirug y especial*, 1935, 16 531
- The conservative treatment of ganglion W THOMSEN *Zentralbl f Chir*, 1935, p 1692
- Blood replacement in surgery P CHATTERJEE *Calcutta M J*, 1935, 30 157
- Intravenous continuous drop infusion and its accidents J MUELLER. *Deutsche Ztschr f Chir*, 1935, 245 149
- The development and present status of electrosurgery VON SEEMEN *Zentralbl f Chir*, 1935, p 1717
- The blood nitrogen following operation J JAKSA *Rozhl Chir a Gynaek. Č chir*, 1935, 14 208
- Variations of the alkali reserve and blood glucose following operation C P SORO *Clin y lab*, 1935, 20 93
- Systematic hypersaline treatment (re-chlorination) of patients subjected to operation P CAZZAMALI and I MIRGAZZINI *Arch ital di chir*, 1935, 40 76 [73]
- The prevention of postoperative complications L I NUNN *Northwest Med*, 1935, 34 343
- Postoperative toxic accidents especially in old and debilitated patients with prostatic disease Curative treatment. Prophylactic treatment. G NORA and M LÉVY *Bull. et mém. Soc d chirurgiens de Par*, 1935, 27 303 [73]
- Postoperative pulmonary complications P SEARA *Semana méd*, 1935, 42 351
- Pulmonary complications following operations on the stomach E RAFFERT *Zentralbl f Chir*, 1935, p 1816
- Thrombosis and embolism in the surgical division of the St Goeran Hospital from 1930 to 1934 A TROELL. *Svenska Läkartidningen*, 1935, p 769
- Postoperative embolism R. STICH 59 Tag d deutsch. Ges f Chir, Berlin, 1935 [74]
- Pulmonary embolism following trauma J S McCARTNEY *Surg, Gynec & Obst*, 1935, 61 369
- Deforming scars J P WEBSTER. *Pennsylvania M J*, 1935, 38 929
- Ossification in operative scars M TORCHIANA and E PANIZZI. *Clin. chir*, 1935, 11 752

Antiseptic Surgery, Treatment of Wounds
and Infections

- The treatment of lacerated soft parts E BUTLER *California & West. Med*, 1935, 43 212
- Occupational injuries of the spine, abdominal wall, and extremities in bakers E L TANOVSKY *Vestn Khir*, 1935, 37 113
- Gunshot wounds of the joints BASTOS and MAZO *Prog de la clin*, Madrid, 1935, 23 544
- Bite injuries E HUDACEK *Beitr z. klin Chir*, 1935, 161 337
- The effect of dinitrophenol on the healing of wounds. R BRASOVAN and D TICHOMIROV *Beitr z. klin Chir*, 1935, 161 645
- The treatment of compound injuries of the hand S L KOCH *J-Lancet*, 1935, 55 569
- Experiences in the treatment of hand injuries with cod liver oil J KRAZOVICKY *Rozhl Chir a Gynaek. Č chir*, 1935, 14 93
- The treatment of burns S T SNEDECOR *J Med Soc New Jersey*, 1935, 32 535
- The treatment of burns O IVANISSEVICH *Bol y trab Soc de cirug de Buenos Aires*, 1935, 19 523
- The treatment of burns M FITTE and O GÓMEZ *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 535
- The treatment of burns GÓMEZ *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 637
- The treatment of gas edema A JENCKEL. *Zentralbl f Chir*, 1935, p 786
- Suppurative tenosynovitis J BEDRNA and A FINGERLAND *Rozhl Chir a Gynaek. Č chir*, 1935, 14 68
- Lessons in war surgery derived from recent experience BASTOS *Prog de la clin*, Madrid, 1935, 23 525
- Infections of the hand Glasgow M J, 1935, 124 117
- Necrosis of the skin of the fingers in infections of the hand J PODLAHA *Rozhl Chir a Gynaek. Č chir*, 1935, 14 64
- The clinical bacteriology of gunshot wounds. F LORENTE *Prog de la clin*, Madrid, 1935, 23 531
- The treatment of wound diphtheria F PENDL. *Zentralbl f Chir*, 1935, p 1210
- The question of tetanus L VON BAKAY and D VON KLIMKO *Beitr z klin Chir*, 1935, 161 574
- Two cases of tetanus with the picture of peritonitis G ÅNGGÅRD *Svenska Läkartidningen*, 1935, p 713
- Tetanus in a child treated with antitetanic serum. J D SPILLANE *Lancet*, 1935, 229 249
- Tetanus antitoxin following active immunization P A T SNEATH and E J KERSLAKE *Brit. M J*, 1935, 2 290
- The treatment of tetanus with continuous avertin anesthesia L COLE *Lancet*, 1935, 229 246
- An interesting case of a black-widow-spider bite complicated by a staphylococcus aureus hemolytic infection D P MACGUIRE *Internat. J Med & Surg*, 1935, 48 268
- The clinical use of staphylococcal toxoid. J A GILCHRIST and M J WILSON *Canadian M Ass J*, 1935, 33 292
- Staphylococcal antitoxin and its use in the specific therapy of certain staphylococcal affections G RAMON, A BOCAGE, R RICHOU, and P MERCIER. *Presse méd.*, Par, 1935, 43 1137 [75]
- Gas-bacillus infections A study of the incidence, treatment, and mortality H J WARTEN *Virginia M Month*, 1935, 62 276

Gas-bacillus infection following the removal of a shrapnel from a wound received eighteen years previously. *Hieritz. Zentralbl f Chir.* 1935, p 1905.

A case of gas gangrene. *N. CASTLE. J Roy Army M. Corps, Lond.* 1935, 65, 127.

Anastomosis in the treatment of furunculosis. *P. NIEUS. Rev belge d ac med.* 1935, 7, 48.

Etiological agents in blastomycosis. *P. DE ALMEIDA. Folha med.* 1935, 16, 303.

Anesthetics

Modern trends in anesthesia. *R. M. TOVELL. California & West Med.* 1935, 41, 93.

The present status of anesthesia in the United States. *F. VOLLMEUTHALLEN. Rev mexicana de ciruj. gener y clinica.* 1935, 3, 469.

The fear of anesthesia in children. *N. H. YOUNG. Svenska Lakartidning.* 1935, p 708.

A case of severe anesthetic poisoning treated with hemolysis. *I. MORSE. Med Rev.* 1935, 3, 61.

The use of sodium evipal as an anesthetic for short surgical procedures. *W. E. GARREY and R. B. COHN. New England J Med.* 1935, 3, 30.

Experiments with evipal in prolonged anesthesia. *A. H. MALLORY and R. HIERITZ. J Lab & Clin Med.* 1935, 20, 460.

Fifty complete anesthetics with prolonged injection of evipal sodium. *C. MALLORY. Ugrsk f Leger.* 1935, p 667.

Brief and prolonged anesthesias with evipal sodium in children. *W. P. SCHWITZ. Wien klin. Wochenschr.* 1935, 1, 330.

The effect of sodium evipal on digestion. *J. M. MAREY. Actas Soc. de ciruj. de Madrid.* 1935, 4, 41.

Leurocan, new anesthetic. *L. L. M. VIER. Arch Ophth.* 1935, 4, 408.

Considerations and chemicochemical studies regarding intravenous anesthesia induced with a new barbiturate preparation. *L. SALVI. Clin. chir.* 1935, 1, 575.

Cyclopropane, new and valuable gas anesthetic. *L. F. SEXT, P. D. WOODHOUSE, and D. H. EVERTON. New England J Med.* 1935, 4, 3, 303.

Vasethen, new anesthetic agent. *E. W. DONATIEL. Deutsche med. Wochenschr.* 1935, 65.

Paravertebral anesthesia. *N. B. BIRCHMAN and T. D. GOUTLEY. Folha med.* 1935, 16, 355.

Forteen hundred and fifteen spinal anesthetics with special reference to indications, contraindications, and mortality. Report of cases with charts. *J. M. ENKERT. Virchow M. Month.* 1935, 6, 304.

Seven years of spinal anesthesia in private practice. *R. H. WOOD, Canadian M. Ass. J.* 1935, 31, 308.

Spinal anesthesia and its use in abdominal surgery. *A. VAILLANT and I. GILSONNET. Zentralbl f Chir.* 1935, p 404.

Spinal anesthesia for high operations. *F. J. GONDELLO. Rev mexicana de ciruj. gener y clinica.* 1935, 3, 445.

An experimental study of the action of subdural pericaps when used for spinal anesthesia. *H. HILASOWSKI and Z. BIRZAKI. Chir. klin.* 1934, 3.

Our experiences to date with rectal twilight sleep. *H. HILASOWSKI. Schminke.* 1935, 8, 41.

Rectal anesthesia with bismol in infants. *E. HOFFMANN. 1935. Freiburg. B. Dissertation.*

Do we need advances in our local anesthetics? *G. HILASOWSKI. Zentralbl f Chir.* 1935, p 1407.

Surgical Instruments and Apparatus

A clip holder. *H. CHARRAC. Am. J. Surg.* 1935, 29, 36.

Ethetic arteries. *O. J. FAVRETT and M. ROBERT. J. de med. de Bordeaux.* 1935, 1, 47.

The sodium content of sodium citrate, its changes and its effect on the tensile strength of catgut during its stay in the tissues. *S. SCHULZ and H. VON VON. Verh. Dtsch. Ges. Chir.* 1934, 93, 3.

The occurrence and resistance of highly resistant spores, with particular reference to sterilization of instruments. *K. KOLLE. Deutsche Ztschr. f. Chir.* 1935, 243, 41.

Sterile sterilization of silk and linen. *K. KOLLE. Arch. f. klin. Chir.* 1935, 83, 90.

As opposed to alcoholic solutions of mercuric chloride for skin disinfection. *J. A. VASILEVIC and L. ARWID. Surg. Gynec. & Obst.* 1935, 4, 322.

PHYSICOCHEMICAL METHODS IN SURGERY

Röntgenology

Diagnostic possibilities in soft tissue radiography. *J. R. CARTY. New England J. Med.* 1935, 3, 17.

Mistaken radiology. *W. O. LOCKE. Brit. M. J.* 1935, 170.

A radiological study of the spine. *M. B. A. MARY. Clin. J. Lab.* 1935, 20, 27.

Radiographic diagnosis in diseases of the lungs. *J. G. EDWARDS. Brit. M. J.* 1935, 403.

Examination of the mucosal relief as a diagnostic and its diseases of the gastro-intestinal tract. *O. W. HOLLAND and R. SCHWITZ. Am. J. Roentgenol.* 1935, 34, 43.

The development of roentgen and radium therapy. *E. P. PRINCE. Radiol. Soc. France. M. J.* 1935, 58, 950.

Observations on the use of 800,000-volt roentgen rays in radium therapy. *H. SCHWITZ. Radiology.* 1935, 3, 141.

The use of the roentgen rays in infections. *R. E. MILES. South M. J.* 1935, 38, 84.

The technique of radiotherapy for various conditions: tuberculosis, leukemia, lymphogranulomatosis, and lymphoma. *M. M. VILLANO. Rev. ind. de Chile.* 1935, 63, 196.

X-ray radiation of neo-malignant disease. *R. HILASOWSKI. Rev. mex. de ciruj. gener y clinica.* 1935, 3, 368.

Röntgen therapy in hyperplastic blood dyscrasias: a new technique for myeloid and lymphatic leukemias, polycythemia rubra vera, and Hodgkin's disease. *H. LAVERGNE. Am. J. Roentgenol.* 1935, 34, 4.

The relief of pain by roentgen irradiation in Paget's disease of bone. *C. B. ROSE. Am. J. Roentgenol.* 1935, 34, 374.

Irradiation treatment of tumors. Late European developments. *C. F. BULL. New England J. Med.* 1935, 3, 407.

Prophylactic anesthesia for radium therapy. *G. H. TWINSKY and G. T. PACK. Radiology.* 1935, 25, 201.

The relation of air saturation to radium absorbed, and the effect on body tissues. *W. O. MILES. Radiology.* 1935, 25, 96.

The relation between age and radioactivity of desmoplastic eggs. *C. PACKARD. Radiology.* 1935, 3, 3.

A telefluorographic unit employing single X-ray tube for both the ambulatory and bed patient. *W. W. FRAY. Radiology.* 1935, 25, 150.

The general pathological conception of cancer. J. E. WOOD. *Canadian M. Ass. J.* 1935, 33, 125.

The clinicopathological significance of the grading of cancer. J. J. STERN. *J. Med. Cincinnati*, 1935, 6, 352.

Cancer as we comprehend it. A. C. HARRISON. *Texas State J. M.* 1935, 31, 313.

Carcinogenesis—a line of research. M. BARNES. *Ann. Surg.* 1935, 61, 560.

A gynecological consideration of the inheritability of cancer. A. MAZZUCCO. *Riforma med.* 1935, 31, 978.

A quantitative study of the growth of the Walker rat tumor and the Fletcher-Johking rat carcinoma. R. SCHICK. *Am. J. Cancer* 1935, 24, 807.

Potential and skin cancer. W. J. YOUNG. *Kentucky M. J.* 1935, 23, 479.

Carcinoma telangiectaticum. F. P. WINTER. *Internat. Clin.* 1935, 3, 145.

Carcinoma metastases to the heart and subcutaneous tissues. W. D. MURRAY and T. W. HENRY. *Am. J. Cancer*, 1935, 24, 83.

The goal and the outlook for the treatment of cancer with medicines. R. ROSS. *Acta med. Scand.* 1935, 85, 409.

The comparative carcinogenic potency of common agents. E. BODER and R. N. LOOSE. *California & West Med.* 1935, 43, 35.

Radiation in anti-cancer therapy. A clinical and experimental study. J. MATHY and A. POLAKOFF. *Rev. belge d. sc. med.* 1935, 7, 417.

The surgical treatment of cancer. T. VERHOEFF. *Oncologist*, 1935, 35, 340.

Observations on rats with a transplantable fibrosarcoma treated with ascorbic (ascorbic) acid. J. A. POLLIA. *Radiology* 1935, 5, 358.

The present clinical value of vitamins. A. E. SCHNITZER. *Arch. f. klin. Chir.* 1935, 81, 573.

Changes occurring in the blood enzymes following surgical intervention. P. BIEZA. *Ann. ital. di chir.* 1935, 14, 835.

Aromatic substances in the blood following operation. P. BIEZA. *Ann. ital. di chir.* 1935, 14, 869.

Causes of 435 deaths during the last five years on the surgical service of the First Hospital of the Red Cross Society of China, Shanghai. K. C. WEN and J. R. B. BRANCK. *Chinese M. J.* 1935, 49, 651.

General Bacterial, Protozoan, and Parasitic Infections

Gonococcal septicaemia, puerperal metritis, peritonitis, endocarditis, recovery. A. CAIN and R. CATAN. *Bull. et méém. Soc. méd. d. hop. de Par.* 1935, 51, 262.

Septicaemia due to *Escherichia coli* (bacterial septicemia) in a newborn infant. Report of a case with autopsy. K. R. MURRAY and B. H. PARKS. *Am. J. Dis. Child.* 1935, 50, 693.

The management of blood stream infection following mastoiditis. E. G. GILL. *South M. J.* 1935, 38, 299.

The bactericidal effect of borax and boric acid. The growth of organisms in blood rendered inconducible with borax and boric acid. H. R. MASON and A. OCHSNER. *Arch. Surg.* 1935, 3, 17.

The surgical treatment of general sepsis. BIELLO. *Zentralbl. f. Chir.* 1935, p. 101.

Ductless Glands

Problems in endocrinology. R. G. HOWARD. *J. Am. M. Ass.*, 1935, 105, 948.

The chemical constitution of sex hormones. J. H. BLACKWOOD. *Glasgow M. J.* 1935, 34, 13.

Cow's milk as a possible excretory source of the anterior pituitary-like hormone. A. WEISSMAN. I. B. KATZMAN, and E. ALLEN. *Endocrinology* 1935, 9, 395.

De morphological changes occur in the hypophysis following destruction of the infundibulohypophyseal system. G. DUBAY and L. SEVERIN. *Spermatologie*, 1935, 89, 595.

A study of the effects of testosterone and injury of the hypophysis on transverse corneal metachromasy in goldfishes. G. M. BERNH. H. S. BURR, and R. S. FERRIS. *Endocrinology* 1935, 9, 400.

Diabetes associated with direct stimulation of the hypophysis. W. R. INGRAM and R. W. HARRIS. *Endocrinology* 1935, 9, 42.

Quantitative studies on the reaction of the anterior pituitaries of immature female rats to extracts of pregnancy urine. J. M. WOLFE. *Endocrinology* 1935, 10, 477.

The thyrotrophic hormone and the basal metabolism in hypophyseal syndromes. J. A. LAMARCA. *Rev. belge d. sc. med.* 1935, 7, 360.

The effect of hypophysectomy on the milk secretion in the dog. B. A. HODGSON. *Rev. Soc. argent. de biol.* 1935, 10, 90.

The provocation of breast secretion in male and female dogs by means of extracts of the anterior lobe of the hypophysis. B. A. HODGSON. *Rev. Soc. argent. de biol.* 1935, 10, 120.

A study of the response of the heart to pituitary following the administration of thyroid extract. C. M. GILMAN, V. H. MOORE and E. BURNETT. *Endocrinology* 1935, 19, 447.

The relationship of the parathyroid gland to the calcium metabolism. DEL P. WILLARD. *Ann. Surg.* 1935, 101, 33.

Idiopathic hypoparathyroidism and tetany in the cow. F. B. HOTT and W. L. BOY. *Endocrinology* 1935, 9, 398.

The relation of contracture and tetany to experimentally produced calcium deficiency in rats with and without lesions of the cortical osseous areas. H. C. CHOW, F. H. PAUL, and D. S. SEARLE. *Endocrinology* 1935, 9, 427.

Renal rickets. Report of a case showing four enlarged parathyroids and evidence of parathyroid hypersecretion. D. H. SELLERS and R. RICHARD. *Bull. Johns Hopkins Hosp. Balt.* 1935, 57, 157.

Surgical Pathology and Diagnosis

Tissue granulation of neoplasms studied as gross surgical conditions. T. GARCIA. *Clin. exp.* 1935, 764.

Experimental Surgery

An experimental study on revascularization following bowel resection. A. WICKEL. *Verh. Deutsche Zucht. f. Chir.* 1935, 415.

An experimental study of the effects of intravenous injections of hypertonic glucose solution (50 per cent) on the circulation of the cat. V. P. MAROTTA and M. A. TERRY. *Am. J. Obst. & Gynec.* 1935, 39, 139.

Experimental observations on the effect of 65 per cent oxygen on the absorption of air from the body tissues. J. FLORE, S. FERRELLI, and A. STARR. *J. Thoracic Surg.* 1935, 4, 635.

A further study of the effects of drugs on ciliary activity. A new method of observation in the living animal. D. M. LITTLE and P. M. MOORE. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 67.

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INTERNATIONAL ABSTRACT OF SURGERY

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COLLECTIVE REVIEW

THE TREATMENT OF WOUNDS AND THEIR COMPLICATIONS

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DURING the year 1934 many articles have appeared in the surgical and medical literature which have been concerned with the numerous problems relating to the treatment of wounds of all types and of the complications that frequently ensue. While nothing of a startling nature has been found during a careful survey of all the literature of this year, still, many interesting and frequently important facts have been disclosed which deserve publication in the present form.

I have divided the entire subject matter at hand under various headings in order to simplify the discussion and to help the reader find any special subject in which he may be interested.

TREATMENT OF WOUNDS

The literature of 1934 on the treatment of wounds of soft parts is unusually extensive and is replete with numerous chemical remedies which are offered to promote wound sterility and overcome infection. Each author extols his own particular pet medication. Kretschmar advises the use of Lakteol (sterilized lactic acid bacilli), Hülzelsauer urges potassium chlorate and calcium chlorate solutions, Pollaczek advises the artificial light which gives the continuous spectrum. Barba states that 1 to 2 per cent mercurochrome in water is better than Dakin's solution. Speidel suggests the use of nutrient broth because the reticulo-endothelial system plays an important rôle in wound healing and, inasmuch as proteins are antigenic, their use will stimulate this system. It will be noted that most of these remedies emanate from Europe, notably from Germany.

However, the vast majority of the authors on this subject stress the great importance of mechanical cleansing of soft part wounds followed by primary or delayed primary suture (see section on gas gangrene) (Florenski, Boehler, Du-jardin, Veraart, Newell and Jett). Many of these writers deplore the use of chemical antiseptics, feeling that they interfere with normal wound healing. I believe that the best surgical opinion today supports this viewpoint. Most surgeons will agree that a wound of any magnitude should be treated by careful mechanical cleansing followed by meticulous surgical excision of all traumatized tissues and primary suture. Minor wounds very often require no sutures. This is especially applicable to lacerations of the hand. I have seen many severe hand infections develop after tight suturing of a laceration, especially on the flexor surfaces. The judicious use of a few small strips of adhesive, placed without tension, will prevent such complications.

The use of cod-liver oil in the treatment of suppurating wounds and burns has received considerable attention, notably from Loehr of Germany, who is its chief proponent. He is of the opinion that cod-liver oil is bacteria free, it inhibits the growth of organisms, produces healthy granulation tissue, and stimulates the growth of epithelium. He attributes its effectiveness to Vitamins A and D. It is especially effective in the treatment of burns. Dziembowski, describing the technique of its use, advises removal of all necrotic tissue and cleansing of the wound as a first desideratum. The use of drains and gauze is contra-indicated. A thick layer of 40

per cent cod-liver oil in sterile vaseline is then applied and the part is immobilized in plaster. The wound is dressed in one or two weeks. Zuelzer mentions the unpleasant odor associated with this treatment. Since adopting this treatment, Loehr has found skin grafting unnecessary.

An unusual case reported by Wheeler deserves mention. A girl of seventeen years with a negative past and personal history, was operated upon for gall-bladder disease. A chronically inflamed gall bladder and a diseased appendix were removed. No exploration of the pelvic viscera was attempted. Convalescence was normal except for a persistent profuse sanguinopurulent discharge from the wound. The operative wound was eventually excised on three occasions. All types of bacterial cultures and many histological studies of the excised tissues gave negative results. Every conceivable variety of therapy was instituted without noticeable effect. It was finally noted that the discharge was more profuse and the wound appeared worse during the patient's menstrual periods. All the pathological slides were re-examined for endometrial implants with negative results. A course of deep X-ray exposure over the ovaries had no effect. Finally two years after the first operation, a bilateral oophorectomy was performed. Within three weeks the suppurating wound was solidly healed.

UNUSUAL INJURIES

Tixier et al report an unusual motorcycle accident in a man of twenty-seven in which a wooden stake 12 cm (6 in) pierced the left thigh from front to back extending from Scarpa's triangle to the buttock. At operation, a section of wood was found between the femoral artery and vein. The operation consisted of débridement at the portal of entry removal of the stake cleaning of the pathway which contained earth and the contents of the patient's pockets, coins, paper etc. and débridement of the orifice of exit. Important structures were not injured. The patient recovered with excellent functional result.

Tixier et al report an unusual sking accident in a young man who landed forcibly in a sitting position in a forest. The accident seemed minor. The wound was located in the ischio-rectal fossa. The patient went into shock with abdominal rigidity and severe abdominal pain. Catheterization revealed no urine. On rectal examination, a piece of wood the size of the thumb was felt thrust through the anterior rectal wall and implanted in the bladder. Laparotomy was done. The abdomen was found to contain a mixture of blood and urine. A long piece of spruce wood

stripped of bark was seen in the abdominal cavity. The end rested on the sacral promontory. It was removed. The bladder wound was closed. Post-operatively he developed a small vesico-rectal fistula. Pulmonary embolus on the thirteenth day and intestinal obstruction on the twenty-eighth day set in. He was discharged well three months later.

Snelson reports an unusual self-inflicted wound of the bladder in a meat-cutter who, while attempting to slice a slab of bacon with a skinning knife, accidentally buried the end of the knife in his abdomen. The wound of entry was located 3 in below the umbilicus. No signs of internal hemorrhage were noted. Catheterization revealed bloody urine. An opening about $\frac{1}{8}$ in in diameter was found in the bladder wall. This was closed. The patient made an uninterrupted convalescence.

Sever reports an unusual automobile accident. The patient, a man of thirty-six, sustained a small transverse cut on the outer side of the left arm just below the elbow joint following the breaking of the windshield. The wound was sutured. Subsequently because of persistent pain, an X-ray examination was made. This revealed a large foreign body at the lower external aspect of the humerus. The mass could be felt as a movable object. The foreign body proved to be a large piece of glass $3\frac{1}{2}$ in long, 1 in wide, and $\frac{1}{4}$ in in thickness. It was found lying beneath the lower end of the biceps muscle.

GUNSHOT INJURIES

Although gunshot wounds always excite the curiosity of surgeons, the literature of 1934 is quite meager on this subject. Trout reports several cases of severe injury following the handling of "duds" or unexploded shells. He emphasizes again how erroneous is the general impression that all shells which have been fired and failed to explode are harmless. Achuthi, in reporting 108 cases of gunshot wounds of the chest, advises more active surgical treatment than has been the case in former years. Exploratory thoracotomy is indicated in (1) open pneumothorax, (2) increasing hemothorax, and (3) suspicion of cardiac or abdominal visceral injury.

In gunshot wounds of the head, Gurdjian and Buchstein advise débridement and removal of dead brain tissue particles of bone and the bullet, if possible, in order to prevent infection. They state that 80 per cent of such patients who are conscious on admission will recover. Hanson discusses the early use of costochondral grafts to fill skull defects.

BURNS

The subject of burns has occupied a not inconsiderable portion of the year's literature. As in previous years, considerable discussion centers about the cause of death in severe burns. Baur and Boron noted a marked decrease in the blood sodium and chlorine and also the urine sodium. They assume that chlorides are retained in the burned tissue. On the other hand, Christophe found, in addition to a marked drop in sodium chloride, a great nitrogen retention. From his observations, Duval reached the same conclusions. The therapeutic effect of hypertonic salt infusions depends on both the volume of the fluid which is administered and the amount of salt which it contains.

Most of the reports are concerned with a discussion of the treatment of burns. Salwen reports two cases treated by surgical excision of the burnt tissue and the application of skin grafts at a later date. Experience has shown, it seems to me, that this form of treatment has little to commend it. Because of the absence of a definite line of demarcation, the surgeon is unable to differentiate completely burned tissue from that which is uninjured or only partially burned. He, therefore, either incompletely excises the involved area or removes too much. Besides, the general condition of these patients does not warrant such a procedure.

The use of tannic acid for the treatment of burns is generally accepted throughout the world and is a tribute to the outstanding contribution of Davidson. Hempel-Jorgensen reports a reduction in mortality from 40 per cent to 11 per cent since the use of tannic acid was instituted. Articles emphasizing this form of therapy have been written by Stanley-Brown, Morrow, Penberthy, Malmstone, and others. The use of a diluted tannic acid bath as described by Wells, has much to commend it. It lessens shock, eases pain, permits of removal of debris, and accomplishes the proper degree of tanning.

Kortkin-Novikow uses a 1 per cent solution of brilliant green with a notable decrease in pain and subsequent scarring. Penick, Jr. reports success with aqueous gentian violet solution, applying this remedy to the burned area in the form of a spray. During the past year, I have seen a number of cases treated with this solution and have been impressed with the smoothness of convalescence and the final result. Gentian violet is more potently germicidal than tannic acid, it forms a lighter and more flexible coating, and the presence of infection beneath the eschar is more easily detected.

Loehr is the chief exponent of the use of cod-liver-oil vaseline for burns. He states that it is germicidal, liquefies necrotic tissue, and promotes rapid growth of epithelium. More will be said of this form of therapy in another section.

The treatment of every burn is an experiment in bacteriology. The success of the experiment in respect to the salvation of the patient, the quality of healing in the wound, the amount of local or constitutional reaction, the discomforts following the receipt of the burn, and the nature and severity of any possible sequels depends on the intelligence and constant care exercised by those in attendance.

ELECTRICAL INJURIES

Judging from the literature, the incidence of injuries due to electrical current is decreasing due to the greater safe-guarding of electrical appliances both in their manufacture and installation. Williams is of the opinion that electrical resistance of the dry human skin is very high and it is because of this that humans are relatively immune to an electric current of 110 volts. He explains the number of deaths from circuits of 110 volts as being due to the stimulating effect of the current. He decries the use of electric lamps in bathrooms and cites numerous instances of sudden electric shock when people, standing in bathtubs filled with water, tried to adjust an electric heater. In each case, the ungrounded wire was probably touched. Jellinek emphasizes the importance of teaching workmen the proper application of artificial respiration. Milko states that the real cause of death in electrical shock is probably of cardiac origin. If no heart beat returns after fifteen minutes of artificial respiration, further treatment will be ineffective.

TETANUS

The literature is replete with instances of tetanus developing after the prophylactic injection of tetanus antitoxin (Pels-Leusden et al., Ponomarev, Kunz, La Cava, Clavel and Clavel, Boerger). To prevent such a possibility, Ponomarev advises active immunization. Clavel and Clavel suggest that failure of prophylaxis may be due to loss of the serum through the kidneys. Kunz feels that it is due to delayed injection, serious tissue destruction, or mixed infection. Kalocsay advises proper care of the wound to prevent this failure.

In order to prevent anaphylaxis following the administration of antitoxin, Schaer advises the use of serum of different species, desensitizing by the method of Besredka and also by using high

grade sera. Freedman reports an unusual case of death following an intracutaneous test with tetanus antitoxin. Buzello, in a discussion of serum shock, states that every serum contains albumin and globulin. The latter is divided into insoluble euglobulin and easily soluble pseudoglobulin. He interprets the mechanics of anaphylaxis as being a process in which the easily soluble portion is transformed into the little soluble portion, and this manifests itself in the form of a fine precipitate which is capable of producing an obstruction in the capillaries. He advises intramuscular injections of calcium gluconate to alleviate the symptoms of serum sickness. Stillmunk reports an unusual case of purpura of the lower extremities following the injection of tetanus antitoxin. He attributes this complication to an underlying latent hemorrhagic diathesis.

The treatment of tetanus, after it has developed, occupies an appreciable portion of the year's literature. Mitchell, Cole, Florey et al. report success in the relief of spasms by the use of curare. Cole had 19 cases with 11 recoveries. Hempel and Harrison and Higgins advise avertin to control spasms. Deville suggests intravenous somnifene, 2 c cm. in 10 c cm. of sodium chloride every eight hours. All authors stress the importance of administering large doses of antitoxin intravenously early in the disease. Bernard, Rigal, and Taylor emphasize strongly the need for surgical treatment of the so-called "healed" wound when tetanus develops.

In an excellent article Miller and Rogers summarize the present status of the treatment of tetanus. They state that prophylactic injection of antitoxin (1,500 units) is indicated in cases of deep or puncture wounds that may be contaminated. In unusually suspicious cases this should be repeated once or even twice at intervals of ten days. The wound should, when possible, be debrided and kept open. After the onset of tetanus, every effort should be made to conserve the patient's strength by the maintenance of nutrition and fluid balance, and by the combating of muscle spasms. Trichloro-ethanol is a useful drug for the control of spasms. As soon as the diagnosis is made serum should be given intravenously intramuscularly or both in daily doses of from 20,000 to 80,000 units. In hyperemathic subjects the process of desensitization must be instituted as soon as possible. There are no theoretical or practical grounds for the recommendation of the intraspinal administration of antitoxin. Serum reactions may be expected in about one-third of all cases treated. The immediate reactions are commonest from two to five days after the initial

dose of serum, and the delayed reactions from the tenth to the fifteenth day. No fatal reactions were encountered in the present series.

GAS GANGRENE

In this mechanized age, infection of accidental wounds with anaerobic organisms is a common occurrence. The importance of the problem is voiced by many authors.

Finsenher feels that, although the Welch bacillus is the most common organism, the probability of a symbiosis is certain, other organisms entering into this bacterial partnership being Pasteur's vibrios septique, bacillus oedematis, bacillus histolyticus of Weinberg and bacillus mordax. He calls attention again to the crepitation of the tissues, the intense pain, the euphoria, high temperature, elevated pulse, and the local appearance and odor of the injured part. Culture of the wound secretion will demonstrate the organisms.

Burdenko and, also, Lochr feel that the toxin produced by anaerobes injures primarily the blood vessels, at first locally and then generally. There is a depression of adrenal function. The death of muscles is due to thrombosis of arteries and veins. Smoler Plasmann feels that the peripheral nerves are affected before the muscles show involvement. The neural changes are related to the characteristic painfulness of the wound.

Lochr makes a strong plea for the prophylactic use of serum in all cases, stating that it affords as sure protection as does tetanus antitoxin. Angerer is of the same opinion.

Apparently more favorable results are now being obtained with the use of serum than was the case in former years, due, undoubtedly, to the manufacture of a more stable and more potent product. All authors stress the importance of its administration in all cases of gas gangrene (Jensen, Lochr, Angerer, Jensen, Faust, Piper, White, Irish, Finsenher, Holland and Smith).

Orr takes up the important question of gas bacillus infections of the stump following amputation of the lower extremity for gangrene or ulceration with infection. He feels that the organisms find access to the wound from dirt-covered skin or as a direct skin contamination from the gangrenous area. In 21 collected cases, the mortality was 71 per cent. A third possibility, not mentioned by the author for the source of contamination is, I feel certain, by way of the lymphatics from the gangrenous or infected foot. The organisms, lying dormant, are awakened to greater reproductive activity by the trauma of the operation and injury to the musculature. It is because of this fact that I adopted the custom,

some years ago, of leaving such amputation stumps wide open. If the bone has been amputated high enough, the subsequent healing of the stump is a matter of small moment.

After all, the problem of gas gangrene is primarily one of prevention. Some years ago, in an article relating experiences with a large number of compound injuries of the extremities (*Annals of Surgery*, 1928, 87: 321), I called attention to the importance of applying the lessons learned during the Great War to civil surgery. These are concerned, mainly, with careful mechanical cleansing of the wound and surrounding skin by the use of soap and water, benzine, and prolonged irrigation of the injured parts with saline solution, meticulous surgical excision of all traumatized tissues, and, finally, primary suture or delayed suture following adequate debridement. The decision to close a wound primarily rests upon a number of factors, namely, the character of the terrain or the circumstances under which the injury was sustained, the extent of tissue damage, the degree of tissue loss following wound excision, the degree of skin tension which would follow suture, and the general condition of the patient. The experience of the surgeon is a large item in arriving at such a decision. Experiences subsequent to the publication of that article have only strengthened my conviction that the incidence of gas gangrene will be materially reduced when such a plan of procedure is more generally utilized.

RABIES

Surprisingly enough, in spite of the relatively large incidence throughout the world, little has appeared in the literature on the subject of rabies. Norton deplors the general indifference to the disease and feels that the menace could be definitely controlled by muzzling, impounding, and destruction of stray dogs, holding owners liable for damage by dogs and annual registration, taxation, and vaccination.

Keller states that anti-rabic treatment should be instituted when a person has been bitten by an animal known to be rabid, when a person's hands or face have been contaminated with the saliva of a rabid animal, when one has been bitten by a stray animal which cannot be located, and in all cases of bites by an animal whose actions suggest rabies. Fuming nitric acid should be used for cauterization of the wound. Face and wrist bites carry a high mortality.

Hodges reports unfavorable reactions due to anti-rabic treatment. These consist of paralytic accidents and are of three varieties: (1) the ascending paralysis of the Landry type, with a

mortality of 30 per cent, (2) dorsolumbar myelitis, mortality of 5 per cent, and (3) mono-symptomatic paralysis. Kiely states that these accidents are not caused by the development of rabies because, at postmortem examination, Negri bodies are not found. The pathological reaction is inflammatory and closely resembles post-vaccinal encephalitis.

BIBLIOGRAPHY

TREATMENT OF WOUNDS

- 1 BARBA INCLÁN, A. Las soluciones de mercurio-cromo en el tratamiento local de las infecciones de las partes blandas. *Cirug ortop y traumatol*, 1934, 2: 40, 61.
- 2 BERNARDINELLI, C. Characteristic contact bruises, abrasions and other injuries in automobile accidents. *Am. J. Surg.*, 1934, 26: 88.
- 3 BESLEY, F. Industrial medicine and traumatic surgery. *Surg., Gynec. & Obst.*, 1934, 58: 490.
- 4 Idem. Industrial medicine and traumatic surgery. *Ibid.*, 1935, 60: 547.
- 5 BOEMLER, L. Die Verhuetung der toedlichen Allgemeininfektion nach offenen Zufallswunden durch chirurgische Behandlung und durch vollkommene nie unterbrochene Ruhigstellung allein, ohne Verwendung der neueren chemischen, immunbiologischen, serologischen und radiologischen Behandlungsmethoden. *Muenchen med. Wchnschr.*, 1933, 80: 1618.
- 6 BÜCKLE-DE LA CAMP, H. Nachbehandlungsfragen nach Unfallverletzungen. *Med. Welt*, 1934, 8: 919.
- 7 CARTER, W. W. Treatment of traumatic injuries to the nose, with special reference to automobile accidents. *Arch. Otolaryngol.*, 1934, 20: 513.
- 8 CHRIST, A. Ueber Caissonkrankheit, mit besonderer Berücksichtigung einer typischen Erkrankung des Hüftgelenkes. *Deutsche Ztschr. f. Chir.*, 1934, 243: 132.
- 9 COULTER, J. S. Physical therapy in traumatic surgery. *Internat. J. Med. & Surg.*, 1934, 47: 409.
- 10 DANIELS, A. Zur Verhuetung und Behandlung der traumatischen Fettembolie. *Zentralbl. f. Chir.*, 1933, 60: 2422.
- 11 DOHERTY, W. D. Common minor soft tissue injuries and their treatment. *Practitioner*, 1934, 133: 132.
- 12 DUJARDIN, E. Nahtlose Vereinigung von Hautwunden. *Deutsche med. Wchnschr.*, 1934, 60: 289.
- 13 DZIEMBOWSKI, Z. Oertliche Anwendung von Lebertran bei Wundbehandlung. *Polski Przegl. chir.*, 1934, 13: 414, 423.
- 14 DZIEMBOWSKI, M. Traitement des plaies par application locale d'huile de baleine. *Bull. et mém. Soc. d. chirurgiens de Par.*, 1934, 26: 356.
- 15 FERGUSON, L. K. The care of athletic injuries to soft tissues. *J. Lancet*, 1934, 54: 551.
- 16 FLORENSKI, N. Die Vorbeugung der Vereiterungen von offenen Verletzungen durch die Methode der chirurgischen Bearbeitung der Wunde. *Sovet. Khir.*, 1933, 4: 359.
- 17 FREY, S. Der Kreuzotterbiss. *Deutsche med. Wchnschr.*, 1934, 60: 240.
- 18 HEIDE, E. Die Behandlung tiefer Stichverletzungen durch Drahtseilspitzen. *Muenchen med. Wchnschr.*, 1934, 81: 1623.

19. HILFENBACHER, K. Wundbehandlung mit dem Kalium- und Kaliumsalzen. Wien. klin. Wochenschr. 1913, 45: 1422.
20. HINDENBURG, J. and LEYER, P. Untersuchungen über Unfallverletzungen. Acta chirurg. Scand. 1934, 73: 195.
21. HOWAN, T. N. Analysis of football injuries. J. Am. M. Ass. 1914, 103: 325.
22. HOWE, Z. and S. MOORE, I. The local application of Vitisain to the treatment of wounds. Oregon Med. 1934, 28: 96.
23. HOWE, L. C. Traumatic surgery of the facial sinuses. Kentucky M. J. 1934, 32: 520.
24. JETT, F. H. Aspic treatment of primary wounds. J. Indiana M. Soc. 1914, 37: 47.
25. KIRSHNER, H. Accidental injuries. Am. J. Surg. 1935, 27: 255.
26. KNOTHAUS, J. G. Sportverletzungen. Med. Welt, 1934, 8: 46.
27. KORTZBORN, A. Die Behandlung der offenen Geleitzwunden durch den praktischen Arzt. Ztschr. f. gerichtl. Fortbild. 1935, 30: 640.
28. KOROWA, A. B. Ueber den Einfluss der Nebennieren auf die Wundheilung. Arch. f. klin. Chir. 1914, 129: 435.
29. KOROWA, A. Z. Experimental data on the treatment of infected wounds. Nov. Khir. Arkh. 1934, 30: 5.
30. KRETSCHMAR, H. Zur Behandlung der Heilungsvergange in der acuten Wundbehandlung. Med. Welt, 1934, 8: 447.
31. KRETSCH, V. The treatment of wounds. Canop. M. J. 1913, 7: 77.
32. LOEBE, W. Ueber die Lebertraum-Überbehandlung (mit und ohne Laparotomie) bei frischen Verletzungen, Verblutungen, und phlegmonösen Entzündungen. 15. Tag d. deutsch. Ges. f. Chir. Berlin, 1934. Zentralbl. f. Chir. 1934, 6: 698.
33. Idem. Ueber acuten Lebertraum-Überbehandlung von Wunden. Verhandl. d. Gesellsch. f. Verdauungsphysik. 1934, p. 65.
34. Idem. Die Wundbehandlung kleiner heilbarer Wunden unter Benutzung von Lebertraum. Therap. d. Leber. 1934, 23: 444.
35. LÖNNER, W. and FRIEDRICH, K. Die Wirkung des Lebertraums und der Lebertraumbehandlung auf Wundheilung. Zentralbl. f. Chir. 1934, 6: 607.
36. LEYER, D. L. The management of industrial accidents affecting employees of the New England Telephone Company. New England J. Med. 1934, 312: 124.
37. NIKOLICH, A. Ethanol bei Entzündungen und infizierten Wunden. 15. Tag d. deutsch. Ges. f. Chir. Berlin, 1934.
38. NEW, L. E. D. The treatment of sterile contused, lacerated and infected wounds. South M. J. 1934, 7: 51.
39. NICHOLS, R. D. M. F. Accidents. Minnesota Med. 1934, 7: 101.
40. PASTORI, R. and J. BRILLI, R. Rapporti fra traumi esterni ed interni ed statistiche dei processi. Pubbl. Roma. 1934, 4: 303.
41. POLLOCK, K. F. Wundbehandlung mit kohlensäurehaltigen Licht. Arch. f. klin. Chir. 1914, 75: 609.
42. POPPER, W. and K. VON K. (Lagerung in der chirurgischen Praxis. Verona med. 1934, 4: 200.
43. PRINCE, M. Primary operation. Med. 1934, 4: 4.
44. R. PETTI, F. Ricerche sperimentali sull'azione dei raggi ultravioletti nei processi di guarigione per prima e seconda intenzione delle ferite della cute del muscolo degli organi parenchimali (fegato e milza). Arch. ital. d. Chir. 1914, 30: 197.
45. SALAMON, A. Herbae breves superficiales (contusion) productae per nocuum in balneis. Med. Ther., 1934, 37.
46. STIFFERT, J. Ueber Behandlungsergebnisse mit Lebertraum. Zentralbl. f. Chir., 1914, p. 3101.
47. SOLOMONSKY, M. Ueber Verbrennungen und verschiedene Methoden ihrer Veresterung. Nov. Khir. Arkh. 1933, 30: 103.
48. SUTTOR, W. C. A. (riceb broth) protein treatment of wounds. Northern Med. 1934, 33: 90.
49. TITUS, K. Surgical aspects of traumatic injuries. Nov. Khir. Arkh. 1933, 30: 60.
50. TINSLEY, M. The local treatment of wounds. Am. J. Surg. 1935, 27: 302.
51. TITUS, A. Abschluß lokale dazw. les traumatismes. Bull. et mem. Soc. d. chirurgiens de Par. 1934, 36: 440.
52. VASAR, B. A. G. Das Gesetz des septischen Wundverlaufs. Monatsschr. f. Unfallchir. 1934, 4: 69.
53. WITKALSKY, R. C. and WATTS, J. B. Apparent relation between wound healing and ovarian function. Case report. New England J. Med. 1934, 7: 630.
54. ZEMEL, L. Necesidad de recibir un envenenamiento con descriptores diferenciados en el plan de estudios médicos. Rev. med. d. Rosario, 1933, 23: 17.
55. ZEMEL, J. and CASI, V. A. Otro caso de leña con lipos de anidato. Bol. y trab. Soc. de chir. de Buenos Aires, 1934, 4: 73.
56. ZEMEL, W. Unsere Erfahrungen mit der Lebertraum-Überbehandlung mit und ohne Laparotomie bei traumatischen chirurgischen Frakturen. Zentralbl. f. Chir. 1934, 6: 705.

UNLURAL INJURIES

- ROUSE, C. Ueber Abledungen, gasser (schmerzlos) bei Wunden. 15. Tag d. deutsch. Ges. f. Chir. Berlin, 1934.
3. BRYAN, J. W. A foreign body in the arm. New England J. Med. 1934, 7: 490.
2. STERNBERG, M. Report of an accidental stab wound of the bladder self-inflicted. Am. J. Surg. 1934, 27: 554.
4. TRUPE, M. CLAYTON, and A. L. L. Traumatism. La rupture de la crosse gauche par un ébranlement épais de bois. J. Chir. 1934, 1: 15.
5. TRUPE, M. PALLANER, F. and (M. TRUPE, C. M. Traumatism. Rupture d'un accident de la. Med. 1934, 1.

NEW WORKS

- ACHTER, M. N. I. Notes of the chest as leading to the findings of war surgery. Verona med. 1933, 4: 53.
- BRIE, STEIN, L. ROME, M. S. SILVERSTEIN, M. and J. WATTS, A. Contributions on transportation of the wounded by aeroplane. Nov. Khir. Arkh. 1934, 30: 605.
- CONZALE, T. A. Wounds by firearms in civil life. Am. J. Surg. 1934, 27: 43.
- GEORGE, F. B. and DEWITT, H. A note on the management of gunshot wounds of the head in civil practice. Med. 1934, 4: 4.
- ILLIOTT, A. M. The use of injuries of the brain in war and the use of early confectionary grafts in skull defect. Med. Surgeon. 1934, 71: 61.

- 6 HUGHES, H V Gunshot wounds in Nicaragua U S Nav M Bull, 1934, 32 191
- 7 KASTJURIN, W Charakteristik der Verletzungen bei den Truppen des Leningrader Militäerbezirks, die Rolle des Militäerarztes und des Hospitals in der Organisation ihrer Bekämpfung Rotarmisten Mil Hosp, 1933, 1 43
- 8 KUPRIYANOV, P A Das Verhalten des Militäerarztes bei Verletzungen. Ibid, 1933, 1 51
- 9 LOWMAN, K E Injuries of the head and spine U S Nav M Bull, 1934, 32 330
- 10 RIBALTA, F Unas notas sobre cirugía de guerra Med Ibera, 1934, 18 257
- 11 TROUTT, J M Local effects of dud-shell explosions Am J Surg, 1934, 25 170
- 12 WILLIAMS, M D Treatment of the Chinese wounded at a base hospital in Peiping, China U S Nav M Bull, 1934, 32 8
- 20 SUNDER-PLOSSMANN, P Hautverbrennung der unteren Körperhälfte mit Ruckmarkssymptomen Med Klin, 1934, 2 1013
- 21 WEAVER, D Burns, their treatment California & West. Med, 1934, 41 222
- 22 WHITEHILL, N Treatment of burns J Iowa State M Soc., 1934, 24 481

ELECTRICAL INJURIES

- 1 FISHER, H E Electrical burns Internat J Med & Surg, 1934, 47 9
- 2 JELLINEK, S Zur Neugestaltung der ersten Hilfe bei elektrischen Unfällen Wien klin. Wchnschr, 1934, 47 581
- 3 MILKO, V Injuries caused by electricity Orvosi hetil., 1934, 78 555
- 4 WILLIAMS, H B The problem of electric shock Am J Surg, 1935, 27 151

BURNS

- 1 BAUR and BORON Hypochlorémie et hypochlorurie au cours des brûlures graves Bull et mém. Soc. nat. de chir., 1933, 59 1252
- 2 BROWN, M The treatment of extensive burns Med Clin North Am, 1934, 17 1393
- 3 CHRISTOPHE, L Recherches expérimentales sur la mort tardive des brûlés J de chir et ann Soc belge de chir, 1933, 32-30 356
- 4 DUVAL, P A propos de l'hypochlorémie et de l'hypochlorurie dans les brûlures graves Bull et mém. Soc. nat. de chir., 1933, 59 1291
- 5 FANTUS, B The therapy of burns in the Cook County Hospital. J Am M Ass, 1934, 103 1446
- 6 HEMPEL-JØRGENSEN, E Treatment of burns with tannic acid. Ugeskr f Læger, 1934, 96 625
- 7 KORITAIN-NOWIKOW, L Behandlung der Brandwunden mit Brillantgrün Zentralbl. f Chir, 1934, 253
- 8 LAQUEUR, B Die Behandlung von Verbrennungen mittels Filzkohle Deutsche Ztschr f Chir, 1934, 242 516
- 9 LOEHR, W Die Behandlung grosser, flächenhafter Verbrennungen 1, 2, und 3 Grades mit Lebertran Chirurg, 1934, 6 263
- 10 MALMSTONE, F A The first aid treatment of burns with tannic acid Internat J Med & Surg, 1934, 47 72
- 11 MARTIN, J D, JR., and FOWLER, C D The germicidal effects of tannic acid with and without the addition of mercurial antiseptics Ann Surg, 1934, 99 993
- 12 MONTPELLIER, T Traitement des brûlures sans pansement Presse méd, Par, 1934, 42 1325
- 13 MORROW, J The treatment of burns Minnesota Med, 1934, 17 330
- 14 NEKULA, R Surgical treatment of severe burns Časop lék čes., 1933, 72 1487
- 15 PENBERTHY, G C Tannic acid treatment of burns J Michigan State M Soc., 1935, 34 1
- 16 PENBERTHY, G C, and WELLER, C N Complications associated with the treatment of burns. Am J Surg, 1934, 26 124
- 17 SALWEN, G Two severe burns treated surgically Svensk läkartidn, 1933, p 1367
- 18 SCANZONI, C von and KUFFERATH, W Erfahrungen mit schwefliger Säure in der Wundbehandlung Deutsche Ztschr f Chir, 1934, 242 511
- 19 STRASSMANN, G Ueber Fettembolie nach Verletzungen durch stumpfe Gewalt und nach Verbrennung Deutsche Ztschr f gerichtl Med 1933, 22 272

TETANUS

- 1 ARMANGUÉ, J Tres casos de tétanos Rev méd de Barcelona, 1933, 20 484
- 2 BAZI, L La vaccination antitétanique Presse méd, Par, 1934, 42 1171
- 3 BÉRARD, M A propos du traitement chirurgical du tétanos Lyon chir, 1934, 31 200
- 4 BOERGER, Ausbruch einer Tetanusinfektion trotz prophylaktischer Seruminjektion Ausgang in Heilung Zentralbl. f Chir, 1934, p 1190
- 5 BROWN, W Tetanus in toy-pistol wounds Brit M J, 1934, 1 1116
- 6 BUZZELLO, A Serumschock und Serumkrankheit nach Tetanusschutzimpfung und ihre Behandlung Deutsche med Wchnschr, 1934, 60 1137
- 7 CHALIER, A, and CHALIER, J Sur le pronostic et le traitement du tétanos Lyon chir, 1935, 32 100
- 8 CLAVEL, C, and CLAVEL, C Combinaison de la vaccinotherapie à la sérothérapie dans le traitement préventif du tétanos Presse méd Par, 1933, 41 1683
- 9 COLL, L Tetanus treated with curare Lancet, 1934, 2 475
- 10 DEL CASTILLO, H Preparación del suero antitético y tratamiento del tétanos Arch de med, cirug y especial, 1934, 37 565
- 11 DEVILLERS, A propos de deux cas graves de tétanos traités tardivement. J de méd de Bordeaux, 1934, 3 909
- 12 EISELSBERG, A Ueber Starrkrampf Wien med Wchnschr, 1934, 84 229
- 13 GALDINI, G Frattura medio-dorsale, scoliosi lombare e contrattura di un arto inferiore complicazioni di tetano Chir d organi di movimento, 1934, 20 449
- 14 FLOREY, H W, HARDING, H E, and FILDES, P The treatment of tetanus Lancet, 1934, 2 1036
- 15 FREEDMAN, H J Acute anaphylactic shock following an intracutaneous test for sensitivity to horse serum Report of a fatal case New England J Med, 1935, 212 10
- 16 GIULIANI, G M Sull'efficacia dell'anestesia eterea nel trattamento dell'intossicazione tetanica Ricerche sperimentali Arch ital di chir, 1934, 38 479
- 17 GRAY, C M Cephalotetanus with a facial paralysis Case report and résumé of methods of treatment. J Missouri State M Ass, 1934, 31 139
- 18 HAHN, E Laehmungen nach wiederholter Seruminjektion Klin Wchnschr, 1934, 13 1309
- 19 HARDOUN, P Un cas de mort subite, immédiatement consécutive à une injection de sérum antitétanique Bull et mém Soc. nat de chir, 1933 59 1424.

- 30 HARRISON, F. A. and HARRIS, H. L. Tetanus infection treated with autotoxin and toxin J Missouri State M. Ass., 1934, 1, 305
- 31 HENSEL, C. Weiterer Beitrag zur Behandlung des Tetanus mit hohen intravenösen Antitoxindosen und mit Avertinmarken in der Marburger Chirurgischen Klinik. Klin. Wochenschr. 1934, 11, 477
- 32 KALOCAY, K. Prophylaxis with treatment of tetanus. Orvosi hetil., 1934, 78, 65
- 33 KLEINER, A. P. and CHORRANO, E. S. The treatment of tetanus in the hospitals of Lancaster Pennsylvania, over a period of thirty years. Am. J. M. Sc. 1934, 87, 700
- 34 KRAJ, Serumprophylaxe gegen Tetanus. Zentralbl. f. Chir. 1934, p. 5
- 35 LA CAVA, G. Su un caso di tetano localizzato in prolasso. Rivista med. 1934, 66
- 36 MICHAUX, Trous cas de tétanos céphalique. Lyon chir. 1935, 31, 64
- 37 MILLER, R. H. and ROZINS, H. The present status of tetanus, with special regard to treatment. J. Am. M. Ass. 1935, 104, 186
- 38 MITCHELL, J. S. A case of tetanus treated with Curase. Lancet, 1935, 26
- 39 OTTO, R. Verwendung von Serumantitoxin bei Verwundung am Tetanus-Antitoxin. Ztschr. f. gerichtl. Forensik. 1934, 31, 30
- 40 PELS-LEUNDE, von KEDWITZ, and KLAFF. Liegen Erfahrungen vor dass trotz vornehmungsweiser prophylaktischer Injektion von Tetanusantitoxin eine Tetanuskrankung ausbricht? Chiruzg. 1935, 5, 790
- 41 POWOMAREV, A. and VINOGRADOV, P. Versuch einer Tetanus-Prophylaxe mit Antitoxin. Soviet. vrac. Gaz. 1935, 3, 75
- 42 RUAL, Sur un cas de tétanos localisé et la valeur de l'aspiration dans le traitement du tétanos. Lyon chir. 1934, 31, 100
- 43 ROUX, F. and VAILLARD, L. Contribution à l'étude du tétanos, prévision et traitement par le sérum antitoxique. Paris med. 1935, 3, 318
- 44 SAKKI, A. Erwiderung an J. Eklund. Voenso-med. 1934, 3, 243
- 45 SCHAEK, H. Tetanusprophylaxe und Berührungskrankheit. Schweiz. med. Wochenschr. 1934, 64, 701
- 46 SMITH, P. A. T. and KIRKLAND, E. G. Further observations following the administration of tetanus toxoid. Canadian M. Ass. J. 1935, 32, 32
- 47 STILLMANN, Purpura erythematosa recidivans après sérothérapie antitétanique. Chénisme définitive par la sérothérapie materielle. Bull. et mémoires. Soc. méd. d'hop. de Par. 1934, 90, 1900
- 48 TAYLOR, F. W. The treatment of acute tetanus. J. Am. M. Ass. 1934, 103, 603
- 49 TRAUTMANN, M. Treatment of tetanus. Wisconsin M. J. 1934, 33, 840

GAS GANGRENE

- 1 ANGERER, H. Zur Frage der Serumbehandlung beim Gasödem. Arch. f. klin. Chir., 1933, 178, 179
- 2 BARRY, J. R. Insult later followed by gas gangrene in diabetic. New England J. Med., 1935, 15, 106
- 3 BERNARD, N. Die Aufgaben der Klinik der anaeroben Infektion (Gasphlegmonen). Verhandl. d. 23. Kongr. d. Chir. d. U. S. S. R. Moscow. 1934, 5, 5
- 4 FAULT, J. J. Radiation therapy of gas bacillus infection. Illinois M. J., 1934, 66, 347
- 5 FIVISILVER, E. M. Gas bacillus infection. J. Med. Soc. New Jersey. 1934, 3, 64
- 6 HOLLAND, P. T. and SMITH, R. D. Gas gangrene treated by anti serum. J. Indiana State M. Ass. 1934, 27, 55
- 7 IRWIN, T. J. Prophylaxis and treatment of gas gangrene. J. Iowa State M. Soc. 1934, 24, 93
- 8 JENSEN, H. Feltene Formen postoperativer und post traumatischer Gasbildung im Gewebe. Zentralbl. f. Chir. 1934, 61, 674
- 9 LÖNNER, W. Das Gasödem, seine klinische Diagnose und seine serologische Behandlung, zugleich ein Beitrag zur Wundbehandlung mit dem Lebertransplantation. Arch. f. klin. Chir. 1934, 79, 30
- 10 Idem. Schutz gegen das Gasödem. Tzvy. Chir. med. Menestviki, 1934, 9, 207
- 11 ORR, T. D. Gas bacillus infection following dental extractions. Am. J. Surg. 1934, 48, 113
- 12 PETER, C. T. Gas gangrene treated by incision and antitoxin, with recovery. Med. J. Australia, 1934, 3, 731
- 13 STONE, C. S. and HOLANDEK, H. B. The diagnosis and treatment of gas bacillus infection. Virginia M. Month. 1934, 6, 300
- 14 SCHÖNKE PLASCHKE, P. Untersuchungsvergebnisse an Gasbakteriengewebe. Beitr. klin. Chir. 1913, 193, 603
5. WARMUTH, F. C. and VARNER KOCK, B. A case of gas gangrene treated by infiltration of the tissues with permanganate solution. J. Am. M. Ass., 1934, 104, 757

RABIES

- HODGINS, F. C. Unfavorable reactions due to antirabic treatment. West Virginia M. J. 1934, 30, 206
- 2 KELLER, W. F. The diagnosis and treatment of rabies. J. Oklahoma State M. Ass. 1934, 27, 30
- 3 KIRBY, C. Paralytic accidents of anti rabie treatment. J. Med., Cincinnati, 1934, 3, 66
- 4 NOLAN, R. Why allow rabies? South M. & S. 1934, 99, 23

ABSTRACTS OF CURRENT LITERATURE

SURGERY OF THE HEAD AND NECK

HEAD

Van Wagenen, W P Chordoblastoma of the Basilar Plate of the Skull and Ecchordosis Physaliphora Spheno-Occipitalis, Suggestions for Diagnosis and Surgical Treatment *Arch Neurol & Psychiat*, 1935, 34 548

More and more frequently, tumors within the cranium hitherto considered inaccessible are being attacked radically. The author reports two cases. The first case was one of chordoblastoma of the basilar plate. The patient was a medical student twenty-nine years of age who complained of diplopia, partial weakness of the right internal rectus muscle, a sense of pressure in the head on changing position, and a sense of numbness of the center of the face and forehead. He ascribed these symptoms to a bilateral otitis media from which he had suffered four years previously. He entered the hospital because of dizziness with a sense of pressure and pain in the head, pathological euphoria, hypesthesia of the facial muscles, and dysarthria. The objective changes were habitual rotation of the head to the left, swelling of both optic nerve heads of $\frac{1}{2}$ diopter, paralysis of the right lateral rectus muscle, nystagmus, bilateral absence of the gag reflex, and slight ataxia and hypotonia. Six months previously the spinal fluid pressure was 220 mm.

Roentgenograms of the skull showed a notch in the basilar plate characteristic of chordoma. Ventriculograms disclosed symmetrical dilatation of the lateral and third ventricle. The aqueduct of Sylvius and the fourth ventricle were found definitely elevated and the fourth ventricle elongated.

A suboccipital craniotomy was done. It was rendered difficult by marked vascularity. The findings were normal until the right trigeminal root was inspected, where a tough, avascular tumor was encountered. Biopsy showed the tumor to be a chordoblastoma, probably malignant.

After the operation the patient did not do well. Therefore, at a second operation, more of the tumor was removed and the tentorium was divided between the incision and the right lateral sinus. This operation was followed by slight relief, but three months later the patient was moribund. Radical extirpation with section of the right fifth, seventh, and eighth nerves and the right anterior inferior cerebellar artery and desiccation of the attachment of the tumor were then done. The patient showed improvement for six months, but at the end of nine months presented signs of recurrence.

A second case reported was one of ecchordosis physaliphora spheno-occipitalis. The patient, a man

forty-five years of age, had been feeling nervous and run down. On the day of his admission to the hospital he had gone home early from work because of headache. After dinner he went for a walk and later was found lying in the street. In falling he had struck his head. Right hemiparesis and motor aphasia developed and progressed, and the patient became comatose. Lumbar puncture showed 300 red blood cells. A left subtemporal burr hole failed to reveal a clot. The patient died several hours later. Autopsy showed that death was due to hemorrhage from the rupture of a small aneurism near the brain stem. Incidentally, a tumor of the basilar plate deforming the pons and brachium pontis was found on the left side. This was composed of structureless debris. Roentgenograms showed a small but definite notch in the basilar plate which should have led to the diagnosis.

On the basis of his experience in the first case the author believes that at a first-stage operation a wide cerebellar decompression exposing the lateral sinus near the mastoid might well be done. Then, the lateral third or half of the cerebellar lobe on the side of the greater palsies of the cranial nerves should probably be removed. The next important step would seem to be section of the tentorium of the cerebellum from the incisura to the lateral sinus on the side of the tumor adjoining the posterior step it would be difficult to gain exposure of the upper end of the tumor. A second-stage procedure seems to be warranted because of the tedious time-consuming process of extirpating the tumor piecemeal with small rongeurs or the endotherm loop. It is unlikely that a tumor of any considerable size could be dealt with without section of the fifth, seventh, and eighth nerves. Such section gives a view of the branches of the basilar artery coursing over the dorsal surface of the tumor. The attachment of the tumor to the basilar plate should be desiccated with the endotherm. In spite of most careful removal, recurrences of a chordoblastoma from its origin in the basilar plate may well be expected, but benign ecchordosis physaliphora should be cured by the described procedure.

EYE

Terry, T L, and Johns, J P Uveal Sarcoma—Malignant Melanoma *Am J Ophthalm*, 1935, 18 903

In recent years evidence has been presented that the so-called uveal sarcoma is of ectodermal rather

than mesoblastic origin. As all tumors of this type have a tendency to produce melanin, the term "malignant melanoma" is more descriptive than any other. Malignant melanomas are found in only 5 of every 10,000 patients visiting eye clinics. This article is a preliminary statistical report on 91 cases of malignant melanoma of the ciliary body and choroid. The cause of death represents the opinion of the attending physician as no autopsies were performed.

The grading of tumors must be done according to rules formulated and tested on similarly classified tumors of each organ. It is not yet safe to rely on grading in determining the extensiveness of operation. In 1923 Callender described 4 or perhaps 5 specific types of primary malignant viral neoplasms: the spindle-cell type with possibly Subtypes A and B, the fascicular type, the epithelioid type, and the mixed-cell type.

The age distribution in the authors' cases was consistent with the findings of other observers. The condition occurred at a relatively younger age in women. Fifty of the 91 patients were males. In 43 cases the condition was not suspected, the diagnosis being difficult or impossible because of large separation of the retina, cataract, glaucoma, uveitis, or opaque cornea.

All cases classified as cases of spindle cell tumor were considered to have good prognosis and all others were considered to have a poor prognosis. It was found in the follow up that a good prognosis was given erroneously in 5 cases and a poor prognosis was given erroneously in 14 cases. Six metastases occurred from five to twelve years after enucleation, and other observers have noted metastases as late as twenty four years after enucleation. In this group of cases and that of the American Register of Pathology no spindle cell tumor of Subtype A gave rise to metastases. The degree of malignancy was graded as follows: Grade 1 Spindle A, Grade 2 Spindle B, Grade 3 fascicular and epithelioid, Grade 4 mixed.

Recurrence in the orbit is rarely noted, perhaps because Tenon's capsule may hold the tumor in check long enough for other metastases to cause death before local recurrence is manifest. Small recurrences in the orbit may not be recognized until they become large enough to interfere with the wearing of a prosthesis. The liver is definitely the most fertile field for metastases, being the site in 15 of 31 cases showing metastases.

There is no correlation between the shape of the tumor and the degree of malignancy. Some of the tumors persisted as flat growths and because very diffuse. Doherty has pointed out that melanomas acutely behaved as a malignant growth in 15 per cent of the cases he studied, indicating that it may be a diffuse malignant melanoma of low-grade malignancy.

Nodular forms of malignant melanoma suggest the possibility of multiple origins, but intra-ocular metastases is a more probable explanation.

The tumor may extend beyond the eye in several ways—directly through the sclera, along an endarterium, into the filtration angle, into Schlemm's canal and through the lamellae, through a perforation of the cornea or an operative wound, and through the optic nerve. The presence of tumor cells in the blood spaces does not necessarily mean that malignant cells are becoming emboli, for the circulation in them may be entirely lacking. The size and number of the blood spaces, the status of the circulation, and the presence or absence of tumor cells in the spaces seemed to have no influence on the malignancy of the tumors.

Differentiation of the various types of pigment was difficult in some cases without special staining methods. Blood pigment was almost entirely dependent on previous hemorrhages. Pigment epithelium of the retina was frequently stimulated to grow by the products of the tumor or mechanical trauma. There was apparently no relation between the amount of pigment in the eye and the amount of pigment in the tumor.

Necrosis was present in 67 cases, varying in degree and type. Inflammation was present in 37 of the tumors and was often associated with uveitis. Uveitis was present in 75 cases. It ranged in degree from a posterior synechia to a severe uveitis. Sauerbels believes that the uveitis is caused by the toxins arising from necrotic tumor tissue. An inflammatory reaction may occur also following separation of the retina alone. Sympathetic events were consistent with malignant melanoma in 1 case. Whether the uveitis is the result of a toxic or anaphylactic action is undetermined.

The retina was separated in 83 cases. The separation may be produced by fluid transuding from the choroid as well as a transudate from the tumor itself. In only a very small number of cases was the tumor not in contact with some part of the separated retina.

Glaucoma was present in 33 per cent of the cases. Pathological changes in the filtration angle sufficient to have produced glaucoma were present in 16 cases in which there was no crippling of the disk and in which glaucoma had not been observed clinically. Glaucoma was present in 30 per cent of the cases of small tumors and in almost all 1 those of large tumors.

A vascularized membrane on the anterior surface of the iris is relatively rare. It occurs as the result of frank inflammation or hemorrhage in the anterior chamber, hemorrhagic retinitis, separation of the retina, and malignant melanoma. A vascularized membrane was seen in 14 cases, with glaucoma present in 3 and an anterior peripheral synechia in the others.

Bone formation was found in only 1 case. Some cases were observed for several months before the eye was removed, a slow rate of growth was noted. The speed of growth is probably irregular and it is impossible to state that all malignant melanomas grow slowly. (OWENS & PLATT, M.D.)

SURGERY OF THE HEAD AND NECK

Hartshorne, I A Comparison of Intracapsular Methods of Cataract Extractions *Am J Ophth*, 1935, 18 835

Hartshorne says that those who have been unsuccessful with any of the intracapsular operations have failed because they did not carry out sufficient animal experimentation before operating on the human eye or because they tried to perform an operation of a type not suited to their own surgical personality His own choice so far as ease of performance is concerned is the Török-Elschnig technique After routine preparation, proper anesthesia, and completion of the section, the capsule of the lens is grasped for about 1.5 mm in the lowest part of the dilated pupil with the Kalt or, more recently, the Elschnig or Arruga forceps The lens is moved gently from side to side for from eight to ten seconds and then lifted with the forceps while its lower margin is pushed upward so that the lens tumbles and its lower edge engages the wound

Hartshorne uses the Lancaster method of controlling the patient Lancaster says, "There are three ways of controlling reflex (a) through the sensory arc by local anesthesia, then the patient cannot feel, (b) through the motor arc by akinesia, then he cannot move, (c) by reducing the sensitivity of the higher centers by sedatives, then he does not want to move even if he could"

With regard to flaps and sutures, Hartshorne states that he prefers a conjunctival flap cut with the knife before removal above the corneoscleral margin He employs no sutures The unavoidable complications from this operation were expulsive vomiting and hemorrhage twelve hours after the operation, an intra-orbital cyst one year after the operation, bad behavior from low mentality, severe diabetes, postoperative hemorrhages, and iris prolapse Avoidable complications were rupture of the capsule, loss of vitreous, and hammock pupil

With regard to the choice between suction and the use of forceps, the author concludes that for such skilled surgeons as Green, McLean, and Fisher, the suction operation is excellent, but for the average eye surgeon, the use of the Kalt or Arruga forceps is better

LESLIE L McCox, M D
O'Brien, C S Detachment of the Choroid After Cataract Extraction Clinical and Experimental Studies, with a Report of Seventy-Five Cases *Irish Ophth*, 1935, 14 527

The incidence of detachment of the choroid after cataract extraction ranges from 4.5 to 22 per cent As to etiology, the many theories simmer down to the following statement the detachment occurs with lowering of the intra-ocular pressure and subsequent transudation of fluid into the suprachoroidal space Sarcoma of the choroid is easily differentiated and the intra-ocular tension is normal or elevated and transillumination shows interference with the transmission of light in the affected area Retinal detachment has an entirely different appearance The

retinal vessels are dark, and usually wavy folds are visible in the elevated retina

The prognosis is good The choroid invariably resumed its normal position and central visual acuity was apparently unaffected The visual fields were studied in some cases a few weeks after re-attachment and were found to be normal

An effort should be made to promote closure of the wound, but otherwise treatment is unnecessary Detachment of the choroid after cataract extraction occurs, so far as can be determined, almost invariably at the time of operation It is due to the reduction of intra-ocular pressure with subsequent congestion of the uveal vessels and a rapid and exaggerated transudation of fluid from the thin-walled veins of the ciliary body and anterior choroid into the normal perichoroidal lymph space The detachment appears in the periphery of the fundus as a translucent elevation bordered by a dark shadowy line with its convexity toward the nerve head

Large detachments follow delayed closure or rupture of the wound At the time of detachment there are folds in Descemet's membrane, the anterior chamber is shallow or empty, and the globe is soft Examination of the peripheral portions of the fundus reveals one or more dark, orange-gray, tumor-like masses which may be localized but more often surround the entire periphery

LESLIE L McCox, M D

EAR

Gray, A A The Treatment of Otosclerotic and Similar Types of Deafness by the Local Application of Thyroxin *Proc Roy Soc Med, Lond*, 1935, 28 1447 *Laryngoscope*, 1935, 45 741 *J Laryngol & Otol*, 1935, 50 729

Gray is of the opinion that in a large percentage of cases of otosclerosis and so-called dry middle-ear catarrh hearing can be greatly improved and tinnitus decreased by the intratympanic injection of thyroxin unless the condition is in its latest stages This treatment is not contra-indicated by paracusis willisii It can be carried out without difficulty by any otologist It is entirely or practically painless and does not interfere with the patient's daily activities

The rationale of the treatment is based on the author's theory that otosclerosis is the result of a decrease in the blood supply to the organ of hearing consequent upon gradual failure of the vasomotor responses The local application of thyroxin produces an active congestion without an inflammatory reaction, which continues for quite a long period of time

It is not yet possible to say how often the treatment must be repeated When improvement occurs, it lasts in some cases for several weeks, but sooner or later the effects must be expected to pass off This article is of the nature of a preliminary communication The cases cited will be reported upon again later

JAMES C BRASWELL, M D

Leshin, N.: Disease of the Hip Complicating Orogenic Septa. *Arch Otolaryngol* 1935, 3: 466.

There are relatively few reports in the literature of disease of the hip complicating otogenic septa, and it is especially significant when one realizes that metastatic suppuration may occur without involvement of the lateral sinus as is shown in this article.

Metastases, however, are a frequent complication of otogenic septa and some authors even consider their development an essential point in the clinical picture. It is not easy to determine the frequency of joint involvement due to the paucity of the cases reported, but some men state the hip is the most frequently involved of all joints.

Four cases are presented in detail, none of which had any demonstrable pathology in the lateral sinuses or jugular vein. In three of these cases the sinus was opened and examined, but no clot was found. In the fourth case the sinus was inadvertently opened and free bleeding occurred from both ends.

Complications of the hip secondary to otogenic septa are carried by the blood stream. They may be single or multiple, intra-articular or extra-articular. They are most frequent in children. The most common and most virulent organism is the staphylococcus followed closely by the streptococcus, but almost every known pyogenic organism has been described in association with these lesions.

The localization of infection to the hip joint is favored by the rich blood supply and associated trauma and the pathological reaction is of three types, namely serous, serofibrinous, and purulent.

Early diagnosis is important and at times very difficult, and one should not wait until definite bony changes show on the X-ray films before instituting proper treatment.

JOHN F. DILLON, M.D.

Kapetsky, S. J.: The Diagnosis and Differential Diagnostic Data on Specific Types of Suppuration in the Petrosal Pyramid. *Arch Otolaryngol* 1935 82: 493.

The author states that the diagnosis of the coalescent type of petrositis resolves itself into the determination of the presence of the condition, the determination of its location within the petrous labyrinth, the evaluation of the clinical picture so that the proper management of the case becomes clear, and the exclusion of other conditions which might produce one or another of the findings in the syndrome.

JAMES C. BRANFILL, M.D.

NOSE AND SINUSES

Curmody, T. E.: Osteomas of the Nasal Accessory Sinuses. *J. Otol. Rhinol. & Laryngol.* 1935, 44: 630.

Osteomas of the sinuses are not very common and most of them occur in the frontal or maxillary sinuses. In 50,000 records of nasal sinus disease, Knapp found only 8 of true osteoma.

The condition is more common in males than in females. In 50 per cent of the cases it occurs in

adolescence and in 80 per cent before the age of fifty years.

According to the various theories, it arises from (1) embryonic cartilaginous cells at the junction of the ethmoid and frontal, (2) the peristoma of the sinus walls (3) the diploe (4) ossified polyp, or (5) syphilitic lesions. There is a wide divergence of opinion also as to the site of attachment of the tumor.

The neoplasms grow slowly as a rule and vary in size.

The symptoms are external deformity, headache, cerebral paralysis, discharge and vertigo. They depend upon the extent and type of the involvement. The treatment is surgical.

Curmody reports 6 cases and tabulates 139 collected from the literature. JOHN F. DILLON, M.D.

MOUTH

Round, H., and Kirkpatrick, H. J. R.: Sequelae Following Injection Anesthesia in the Mouth: A Bacteriological Investigation. *Proc. Roy Soc Med Lond* 1934, 28: 1679.

The authors discuss the sequelae which occasionally follow injection anesthesia of the mouth for the extraction of teeth. Among such sequelae are pain and swelling, neuralgia, abscessing of the soft tissues, osteitis, necrosis, osteomyelitis, and tuberculous ulcerations at the site of the injection. Bacteriological studies of the mouth were made in an effort to explain these complications.

Cultures taken from the unprepared surface of mouth tissue always showed the streptococcus viridans. Other organisms, mentioned in order of decreasing frequency were the streptococcus hemolyticus, the micrococcus pharyngis flavus, the staphylococcus aureus and albus, and pneumococci.

Cultures taken from the surface of mouth tissues after preparation for one minute with iodine solution were positive in 6.6 per cent of the cases.

Positive cultures were obtained from the depth of the tissues in 26.6 per cent.

LEON T. BYRNE, M.D.

NECK

Frank, T. J. F.: A Comparison of Basal Metabolic Rates Obtained by Gasometric Analysis and Formulas. *Med J Australia*, 1935, 1: 397.

Following a detailed review of the formulas of Read, Gale and Gale, Jenkins, and Read and Barnett, the author presents his own findings and concludes his article with the following summary:

1. A comparison of the basal metabolic rates obtained by indirect calorimetry (Douglas-bag and Haldane-bag analysis) and by the Read formula, the modified Read formula, and the Gale formula was made in the cases of 350 patients.

2. There is a large margin of inaccuracy in the formula determinations. In only approximately one-fifth of the cases was the error less than 5 per cent,

SURGERY OF THE HEAD AND NECK

and in over 30 per cent of the cases it was more than 20 per cent. Very frequently when the basal metabolic rate determined by gas analysis was low, the formula gave higher readings. In hyperthyroidism the reverse was true.

3. The gasometric analysis for determination of the basal metabolic rate cannot be supplemented or replaced by formulas.

PAUL STARR, M D

Schindler, C. Stenoses of the Trachea with Special Consideration of the Variety Produced by Goiter (Ueber Trachealstenosen mit besonderer Berücksichtigung der durch Kropf bedingten). *J. kurse aerill Fortbildg*, 1935, 26, 1.

Tracheal stenosis is more frequent than is generally realized. In this condition, goiter plays an important part. Congenital structural deformity of the trachea is comparatively rare. There follows a short discussion of obstructions of the lumen of the trachea, especially foreign bodies. X-ray examination should never be omitted. Sometimes both bronchoscopy and bronchotomy are necessary. Narrowings of the trachea may result from inflammation of the perichondrium of the tracheal rings. More frequent is secondary perichondritis produced by foreign bodies. Necrosis of the tracheal rings may result from operative interference. Marked narrowing of the trachea results especially from ring goiters. Prolonged pressure on the trachea may lead to weakening of the tracheal rings.

In cases of slowly growing goiters the tracheal narrowing may be well borne. The most important of all tracheal narrowings are produced by benign and malignant tumors of the thyroid. These are discussed separately. Narrowing of the trachea occurs also from rupture of the trachea, swelling, and cutaneous emphysema. More extensive constriction occurs through pressure from without: phlegmon of the neck, aneurism, malignancy of the region of the neck, etc. The most important of the malignant tumors causing such constriction is cancer of the trachea. A great deal can be accomplished with the bronchoscope. In external operations the possibility of injury to the recurrent laryngeal nerve is always to be borne in mind. At operation for narrowing of the trachea due to a thyroid tumor only local anesthesia is to be considered. In some operations under certain conditions tracheotomy is necessary. The operative relief of severe tracheal stenosis requires great experience and great ability. If the operation is performed correctly it gives very good results.

(Koch) PAUL STARR, M D

Cope, O. The Surgery of Subtotal Parathyroidectomy. *New England J. Med.*, 1935, 213, 470.

The treatment of hyperparathyroidism is of three types—medical, roentgen, and surgical. Medical management is definitely dangerous. The results of irradiation are, so far, inconclusive. The results of surgery are brilliant in cases of solitary tumors but not yet definitely established in those of diffuse hyperplasia.

The surgical treatment of hyperparathyroidism is dissimilar to thyroid surgery. Replacement therapy is possible in postoperative myxedema, but is not fully satisfactory in postoperative tetany. Moreover, the latter condition may terminate fatally or contribute to a fatal termination due to other causes. Parathyroid grafting is still in the experimental stage. The thyroid is anatomically accessible, whereas parathyroid tissue must be searched for in an area extending from the upper lobe of the thyroid to the anterior or posterior mediastinum. The recognition of parathyroid tissue even when it is exposed is difficult. The slightest trauma causes a reddish discoloration of the normally light brown color and changes the smooth, slightly glistening surface to a rougher redder tissue which is easily mistaken for thyroid tissue or a haemo-lymph gland.

The most common cause of hyperparathyroidism is a hyperfunctioning adenoma. As a rule as many hyperfunctioning adenomas as are found should be removed completely. However, subtotal removal of such adenomas is indicated if, at a previous operation, one or two normal parathyroids were removed or traumatized with consequent reduction of the normal available parathyroid tissue and if there is active bone disease with a high pre-operative phosphate level in the plasma. Under these conditions the drop in the blood calcium may be carried to tetanic levels by the calcium-hungry bones. If the patient's subsequent course proves that too little tissue had been removed, more may be removed at a second or third operation.

In one out of every five cases of hyperparathyroidism the disease is due, not to a single adenoma or multiple adenomas, but to a diffuse hyperplasia of all parathyroid bodies. Subtotal parathyroidectomy is the rule in these cases. The difficulty lies in determining how much tissue to remove. If not enough is removed the disease may not be cured, and if too much is removed severe tetany may be precipitated. Until safe replacement therapy is possible, one cannot be sure that surgery will prove to be the best method of treatment in these cases.

FRED S. MODERN, M D

Jackson, C. and Jackson, C. L. Contact Ulcer of the Larynx. *Arch. Otolaryngol.*, 1935, 22, 1.

Contact ulcer of the larynx is a superficial ulceration occurring on one or both sides of the larynx posteriorly which, as the result of contact on phonation, causes ulceration in the same region on the opposite cord.

The chief active etiological factor is undoubtedly vocal abuse. The chief symptoms are hoarseness and a constant desire to clear the throat to improve phonation. Pain is unusual. The symptoms are of no aid in the diagnosis. Mirror inspection is usually efficient. In some cases proper inspection is possible only by direct laryngoscopy. The most important part of the treatment is rest of the voice. In some cases the excision of an accompanying granuloma is necessary.

The appearance of the lesion as seen by mirror laryngoscopy is shown by two colored plates

J. FRANK DOUGLASS, M.D.

Taylor, H. M.: Ossification of the Cartilages of the Larynx and Its Relationship to Some Types of Laryngeal Disease. *J. Am. Med. Assoc. & Laryngol.* 1935, 44, 6-1

Taylor states that while age is the primary factor in ossification of the cartilages of the larynx, the wide variability of the age period suggests that there may be other etiological factors which have not as yet been definitely determined.

In general, ossification of the laryngeal cartilages begins later and advances more slowly in women than in men.

Röntgen study shows that, normally the process begins in the thyroid cartilage, occurs next in the cricoid cartilage and involves the arytenoid cartilages last.

Some diseases seem to retard ossification of the laryngeal cartilages while others seem to hasten it.

An ossified portion of laryngeal cartilage may as a sequestrum, become an etiological factor in abscess of the larynx.

The diagnosis of perichondritis is made not infrequently in the cases of aged persons. A roentgen study reveals that the cartilages have been transformed into bone.

Röntgen studies of morbid conditions of the larynx, particularly where deep inflammatory processes are present, are an invaluable aid to diagnosis and should be made with greater frequency.

JAMES C. BRIDGEMAN, M.D.

Portmann, Mourgneux and Bertrand. Clinical and Anatomicopathological Studies of Laryngeal Cancer in the Aged (Considérations cliniques et anatomopathologiques sur le cancer du larynx chez le vieillard). *Presse Méd. Par.* 1935, 43, 1-60

In an attempt to ascertain the cause of the slowness of the course of laryngeal cancer in the aged as compared with its course in younger subjects, the authors made a detailed histological study of sixty-one laryngeal cancers occurring in persons between sixty-five and eighty-two years of age. They state that while the three stages of formation, growth, and invasion occur in a similar manner regardless of the age of the patient, in young adults they are often passed through in such rapid succession that by the time the patient is admitted to the hospital the neoplastic invasion has reached an extent rendering intervention hopeless. In the aged on the other hand, the cancer may remain stationary at any one of the stages for a considerable period and may not cause serious trouble until much later. In thirty-eight (60 per cent) of the cases studied, no marked increase in the tumor could be demonstrated for from one and a half to two years. The cases included in this series were those of patients who had refused treatment and of patients of too advanced age to justify intervention. The subjects' symptoms seem to be

similar whatever the age of the patient whereas the objective symptoms show a wide divergence at the different age periods.

Extensive invasion of the laryngeal framework producing a cervical deformity visible on inspection and a lobster shell sensation on palpation occurs much later in the aged than in the young. In the reviewed cases it was exceptional. Absence of laryngeal crepitation (Moore's sign) was noted in only twelve cases. In only twenty-three was there a complicating adenopathy.

Laryngoscopy revealed that the most common sites of the tumor were the anterior third of the vocal cords and the base of the epiglottis. There was no case of subglottic cancer.

In forty-one cases the tumor was of the vegetating type; in eleven cases, of the infiltrating type; and in fifteen cases, of the ulcerating type.

This brief clinical review shows that slower development of the lesion in the aged is the only differential element between cancer in old and cancer in younger persons.

The histological examination of the tumors in the sixty-one cases offered no support to the theory that the slow development corresponds to tissue reactions indicating a lower degree of malignancy. In 67 per cent of the cases the tumors were completely differentiated pavement epitheliomas of the squamocellular type. Nineteen per cent of the pavement epitheliomas were of the incompletely differentiated intermediate type. In 13 per cent of the cases the tumor was an undifferentiated pavement epithelioma of the basocellular type. Only one of the neoplasms was a cylindroid epithelioma. The histological details of each group are described.

The authors conclude that the slow clinical course of cancer of the larynx in the aged is due to factors that cannot be explained by histological examination.

EDITH SCHWABER MOORE.

Pentecost, R. S. The Treatment of Cancer of the Larynx and Hypopharynx. *Cancer* 11, 413-5, 1935, 33-4

The diseases most closely resembling cancer of the throat are benign tumors, tuberculosis, and syphilis. Indirect laryngoscopy by means of the laryngeal mirror may give a good view but suspension or direct laryngoscopy is always indicated, and bronchoscopy and esophagoscopy are desirable in many cases. Only by such means is it possible to determine the size of the growth and the depth of infiltration of adjacent tissues. The author has a biopsy performed on all growths of the larynx and hypopharynx. While the pathological report may not be conclusive it is of inestimable value in determining the correct procedure to be followed. The view so long held that biopsy stimulates a growth to renewed activity is not borne out by clinical experience.

Approximately 80 per cent of laryngeal growths can be successfully removed by the operation variously known as laryngotomy, thyrotomy or thyrochondrotomy. The surgical mortality is less than 1

per-cent Lasting cures have been obtained in from 75 to 90 per cent of cases thus treated There is no postoperative deformity The degree of preservation of the voice depends on the amount of tissue removed

Growths involving both sides of the larynx and some of those which have invaded the aryepiglottic fold, arytenoids, or epiglottis can be successfully removed by total laryngectomy By improvement in the technique the surgical mortality has been reduced to less than 5 per cent In cases of so-called intrinsic and extrinsic cancer of the larynx considered together the incidence of five-year cure is approximately 20 per cent In cases of intrinsic cancer it is approximately 65 per cent

Growths originating in the epiglottis are usually of low malignancy, and when they are confined to the epiglottis they can be successfully removed by surgical diathermy When extension has taken place to the aryepiglottic folds or the base of the tongue, permanent arrest is doubtful For growths originating in other parts of the hypopharynx, lateral trans-thyroid, anterior translingual, and subhyoid pharyngotomy have been employed with success in combination with radium implantation

Every clinician is familiar with cases in which the cancerous growth, treated by irradiation, appeared to melt away like butter in the midday sun, only to recur in a few months or years in neighboring structures Every surgeon can testify regarding the disastrous results of surgical interference in tissues whose vitality has been lowered by irradiation At least five years must elapse before judgment can be pronounced on the recent claims of radiologists Until that time, as far as cancer of the larynx and hypopharynx is concerned, the physician will be giving his patient the best that medical science offers by advocating complete surgical removal, when possible, followed in selected cases, by irradiation by the protracted fractional method of Coutard

JOSEPH K. NARAT, M.D.

Edling, L. Primary Results of Teleradium Treatment in Cancer of the Larynx and Hypopharynx at the Radiological Clinic of the University of Lund, 1931-1933 *Radiology*, 1935, 25, 267

The Radiological Clinic of Lund has at its disposal about 2 gm of radium element This quantity is divided into twenty-four tubes of 50 mgm each and put into the radium gun constructed by Sievert The radium cassette is placed at a distance of 5 cm from its orifice, and the circular field of treatment has a diameter of 5 cm The quantity of radium being relatively small, the author employs a filter of only 2 mm of lead equivalent Because of the small diameter of the irradiation area of the gun and in order to prevent overcharging of the skin with gamma rays, it is necessary to apply this instrument to several fields close to one another The lead mantle of the gun affords protection against overlapping at the surface In the depths, overlapping is attained by slightly tilting the gun from different directions

or by irradiating also from the opposite side of the neck Tumors located at a depth of from 3.5 to 4.5 cm, such as most throat tumors, may therefore be treated effectively by economical irradiation

In cases of intrinsic laryngeal cancer the author generally uses one field over the larynx from the front, two fields from the sides, and two fields slightly more posterior, one on each side Metastases being rare in such cases, it is unnecessary to extend the irradiation to other parts of the neck As a rule the total quantity of radium irradiation given has varied between 52,000 and 90,000 mgm-hr In order to prevent over-irradiation of the larynx, the anterior field is given somewhat lighter doses than the lateral fields

In cancer of the hypopharynx (including "extrinsic" cancers of the larynx), metastases are commonly felt in an early stage of the illness and the deep glands of the neck, although not yet palpable, are also often invaded Accordingly, the author generally uses one anterior field, two fields on either side of the neck, one above the other, and eventually two additional posterior fields On account of the very marked malignancy of these tumors, the total surface intensity should be somewhat higher than in cancer of the larynx, viz., from 70,000 to 100,000 mgm-hr A treatment of two hours' duration is given every day The irradiation is usually continued for from sixteen to twenty-four days and given day and night, even on Sundays Most patients stand this therapy without difficulty Nevertheless, general symptoms due to the treatment frequently occur, especially during the later period of irradiation In a great many cases there is general exhaustion and sometimes there is nausea or vomiting In some cases these symptoms occur in an early stage of the treatment, but on the whole they seem to be milder and of shorter duration than in protracted roentgen treatment In many respects, the local effects of teleradium treatment resemble those of the fractional roentgen treatment, but as a rule they are considerably milder, at least so far as subjective disturbances are concerned

In intrinsic laryngeal cancer the results seem to compare favorably with those of surgery so far as the primary tumor is concerned From the point of view of function they are far better than those of surgery, at least in cases in which surgical treatment would have required laryngofissure In its effect on metastases, teleradium treatment is considerably superior to other methods of radium irradiation For cases of cancer of the hypopharynx, in which operation, even when performed most skillfully, results in cure only exceptionally and generally at the cost of severe mutilation, irradiation therapy is the method to be preferred Teleradium, if technically applicable, may be employed more advantageously than fractional roentgen treatment as it causes more favorable biological effects and is associated with considerably less risk as regards changes in the skin and mucous membranes

JOSEPH K. NARAT, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Easer, A.: The Importance of the Pathological Anatomy in Cases of Traumatic Brain Changes for the Practical Recognition of Injury in the Living Patient with an Injury of the Head (Die Bedeutung der pathologischen Anatomie bei traumatischen Hirnveränderungen für die praktische Begutachtung lebender Kopfverletzter). *Münchener Med. Wochenschr.* 1935, 3364.

According to Easer observation in a hospital is to be recommended even for apparently mild injuries of the head. He claims that taking the differentially diagnosed (intracranial) pressure, commotio, and contusio as a clinical basis, which today can scarcely be considered tenable, our understanding of the pathological anatomy of commotio cerebri at present is totally inadequate and uncertain. Not so much the severity of the blow but the spot at which the injuring force strikes the skull, is significant as to what brain condition may be expected. When a blunt force strikes the frontal bone (from in front) mild to very extensive destruction of brain tissue in the frontal lobe may result, but injury by contrecoup in the occipital lobes is always remarkably slight. When the force strikes the parietal bone (striking the skull from above) contrecoup injury to the cortex of the brain is seldom avoided. The parts affected are the lateral convolutions and the basal part of the frontotemporal section of the brain. When the force strikes the temporal bone (practically squarely from the side) the absence of a contrecoup injury to the cortex is also to be characterized as an exceptional finding. In this case the secondary injury predominantly affects the basal part of the frontotemporal section of the brain. It is to be noted that in temporal lesions, intracerebral hemorrhages (from the ganglia, medullary layer and brain stem) appear to be particularly numerous. When the part receiving the blow is the back of the head (force coming from behind) there is always a contrecoup injury most frequently at the base of the brain.

After making numerous histological studies on brain injuries due to blunt force on the skull, Easer states that true cicatrization does not take place in the brain cortex after injury has been produced by a blunt force. Obliteration of the old defect is usually very imperfect, and a continuous further degenerative process occurs in the old areas of destruction. The base and the sides of the defect become covered to a greater or lesser extent with tough, fibrous felted masses, which are recognized as being made up of the supporting tissue of the nerve fibers. Therefore, in these cases there is a true glial, cicatricial substitutive hyperplasia. In the glial cicatrix is a

network with nests of cells containing iron and fatty granules and lymphocytes (degenerative products). Therefore the old focus may light up again either from exogenous or endogenous causes. On the other hand, true cicatrix formation may be observed in old gunshot wounds of the head, but only in the part where inflammatory processes have occurred and following a long period of suppuration. Great care must be exercised in the diagnosis of neurosis or hysteria. Frequently in such cases the autopsy disclosed extensive old defects of the cortex of the brain in regions where they were undetectable by neurological or other methods of diagnosis. Therefore an autopsy is necessary in every case of recent and especially in every case of old injury of the skull. (Günther.) *JOHN W. BARNETT, M.D.*

Globus, J. H., and Shwerstone, S. V. Diagnostic Value of Defects in the Visual Fields and Other Ocular Disturbances Associated with Supratentorial Tumors of the Brain. *Arch. Ophth.* 1935 34 325.

The authors report an investigation carried out to determine (1) the value of defects in the visual fields and other ocular disturbances in the localization of brain tumors (2) how frequently the clinical diagnosis, based on defects in the visual fields, can be corroborated by observations at operation or postmortem examination, and (3) what other factors besides the location of the tumor are responsible for the presence or absence of the commonly found ocular disturbances.

The 175 supratentorial tumors studied were subdivided into 20 groups according to the location of the tumor. The groups were further subdivided into encapsulated and benign tumors. Fifteen of these groups represented the most frequent sites of tumor in the various lobes. The remainder were classified in a miscellaneous group including intraventricular basal ganglion, third ventricle, and diffuse hemispheric tumors. Another group, classed as interpeduncular, was subdivided into suprasellar meningiomas, craniopharyngiomas, and pituitary adenomas.

A final analysis by the authors led to classification of the tumors into 5 main groups. The first group consisted of 84 tumors with a subfrontal, temporo-posterior, temporo-lobar, temporo-frontal, temporo-parietal, temporo-occipital, occipital, occipitoparietal or interpeduncular location. In 46 cases there were characteristic defects in the visual fields. Each was in accord with the accepted view regarding the effects of an expanding lesion of the optic pathways and the visual disturbances were of great aid in the pre-operative diagnosis. In the remaining 38 cases the visual fields were not reliable because of the low mental state of the patients.

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The second group comprised 22 parietal and frontoparietal tumors. Homonymous hemianopia was detected in 4 cases, but the lesions were found outside the course of the optic pathways. In 3 of the 4 cases the tumor was encapsulated.

The third group was made up of tumors of the frontal lobe and prefrontal tumors. Although such tumors are said to produce a characteristic syndrome, a Kennedy syndrome was found in only 1 of the 40 cases. In the remaining miscellaneous group of 30 cases the visual fields and ocular changes were of practically no diagnostic aid.

Scotomæ proved to be of little diagnostic aid. Inequality of the size of the pupil was rather frequent. In many cases the inequality was unrelated to the site of the lesion, while in a large number, particularly those of interotemporal, posterotemporal, temporolobular occipital, temporo-occipital, occipito parietal, frontoparietal, and diffuse hemispheric tumors the larger pupil was very frequently contralateral to the site of the lesion. It was usually homolateral with the defect in the visual field. The pupils frequently were equal in cases of intraventricular tumor and tumor of the basal ganglia, and in a large number of the cases of suprasellar tumors a poor reaction to light on one side was not infrequent. It was not limited to any particular group of cases.

Of the extrinsic muscles of the eye, the rectus externus was involved most frequently. Next most frequently affected were the muscles supplied by the third nerve. Impairment of convergence was common in almost all of the groups. The authors discuss also conjugate ocular movements, paresis of upward gaze, nystagmus, diplopia, exophthalmos and inequality of the palpebral fissures.

ROBERT ZOLLINGER, M.D.

SPINAL CORD AND ITS COVERINGS

Rascholsky, I. The Fate of 141 Patients Who Suffered from Tumors or Tumor-Like Syndromes of the Spinal Cord (Das Schicksal 141 Kranker die an Tumoren oder tumorähnlichen Symptomen komplexen des Rückenmarks gelitten haben). *Arch f. klin. Chir.*, 1931, 182: 231.

This is a brief and partly statistical review of the author's experiences. Ninety-seven patients suffered from tumor circumscribed arachnitis or leptomeningitis. The clinical diagnosis was confirmed at operation or autopsy. Forty-four patients had a vertebral tumor or compression of the spinal cord. The diagnoses are presented in a table. Intradural tumors and intradural conditions producing a tumor-like syndrome constituted 44.7 per cent of the pathological processes. Most of them were operable. Next in frequency, constituting 31.2 per cent of the processes, were the cord tumors. Not all of these were operable.

After a brief discussion of the mistakes made in the general diagnosis and with regard to the level of the pathological process, the author discusses the treatment. Operation was performed in only 70

cases. Operation is contra-indicated by malignancy of the tumor, an unfavorable location, and poor general condition (decubitus, severe disturbances of the urinary bladder).

Operation was performed in 9 of 44 cases of vertebral tumor, 12 of 24 cases of extradural tumor, 27 of 34 cases of intradural tumor, and 4 of 10 cases of intramedullary tumor. Twelve of 18 patients with arachnitis or leptomeningitis and 4 of 6 patients with large varices in the region of the cord were treated surgically.

The total operative mortality was 7 per cent as compared with 0.5 per cent reported by Elsberg, 8.3 per cent reported by Petit-Dutailis, 3 per cent reported by Dandy, and 6.5 per cent reported by De Martel. A complete cure was obtained in 2 of 9 cases of vertebral tumor, 4 of 9 cases of extradural tumor, and 13 of 27 cases of intradural tumor. The incidence of complete cure was therefore 48.1 per cent as compared with an incidence of from 50 to 75 per cent reported by Elsberg, Adson, and Dandy. Three of 5 patients with cysts, 0 of 12 with arachnitis, and 2 of 4 with varices were cured. Of 4 patients with intramedullary tumor, only 1 was benefited.

In conclusion the author discusses the possibilities of improving the results in such cases. In addition to the necessity of microscopic examination of the tumor at the time of the operation, he emphasizes the importance of early operation. By means of a table he shows that in the presence of paralysis of the lower extremities operation was most successful in the cases in which the paralysis was least marked.

(KISSSEL) IFO A JUNIOR M.D.

PERIPHERAL NERVES

Davidson, A. J., and Horwitz, M. T. Late or Tardy Ulnar Nerve Paralysis. *J. Bone & Joint Surg.* 1935, 17: 844.

Late or tardy ulnar paralysis follows fracture of the external condyle of the humerus usually by not less than ten years and up to thirty years. It occurs in from 2 to 3 per cent of all fractures of the elbow region.

The diagnosis can be made easily on the basis of a history of fracture about the elbow followed first by progressive ulnar nerve palsy and then by cubitus valgus deformity. The ulnar nerve symptoms are due to stretching of the nerve at the elbow and repeated traumatism from movements of the elbow joint. An enlargement of the nerve (neuroma) usually forms behind the elbow.

The treatment is directed to relieve the tension on the nerve and shorten its course. This is accomplished by transposing the nerve to the front of the internal condyle. So long as the nerve retains some function this procedure followed by active physiotherapy is sufficient. When the function of the nerve has been completely lost, excision of the neuroma and end to end anastomosis of the cut nerve are advisable.

DAVID J. IANUZZO, M.D.

Stout, A. P.: The Malignant Tumors of the Peripheral Nerves. *Am J Cancer* 1935 35

The author discusses two groups of malignant tumors developing in peripheral nerves, reports eight cases, and reviews cases recorded in the literature.

Of the first and more common group of tumors, the majority are designated as fibrosarcomas while a few are termed malignant neurofibromas. Most of these tumors develop in individuals suffering from von Recklinghausen's disease. They may be present for many years and suddenly take on rapid growth which is usually accompanied by pain. They are generally firm and well circumscribed, although in those of large size areas of necrosis and hemorrhage are found. The author discusses the microscopic morphology of these tumors in detail. In all of his cases the tumor was characterized by persistent growth with a marked tendency to re-appear after attempts at removal. Many cases proved fatal although there were metastases in only 20 per cent of the cases of fibrosarcoma. The tumors are extremely radioresistant.

The second group of malignant tumors was represented by only a few neoplasms which probably had a common origin from neuro ectoderm.

The author cites also tumors derived from ganglia situated within various nerves. These were not considered primary nerve tumors. One pigmented paraganglioma of the ganglion nodosum, situated in the vagus nerve, is reported with illustrations.

ROMAN ZOLNOR, M D

MISCELLANEOUS

Baermond, W. F. The Surgery of Pain (Die Chirurgie des Schmerzes). *Gesund Bl* 1935 33 93

The statements of the author are based on a large number of experiences on the part of himself and Professor Zsayer. He distinguishes nerve, vascular, tissue, and organ pains. Pain is frequently caused by pressure resulting from edema, pus collections, hematomas, or overfilling of organs which press on the peripheral nerve endings. The periarterial nerve fibers also cause painful sensations, and in addition there are the painful vascular spasms (intermittent claudication, angina, angina pectoris). Nerve pain may be induced in such cases in which the ilio-femoral nerve becomes included in a hernia operation. In an amputation it is not sufficient to merely shorten the large nerve trunks. In order to prevent pain a terminal periarterial sympathetomy of the large arteries should be undertaken before ligating them. The surgery of pain often seeks to relieve pain where the cause of the pain is incurable (tumors). However even in these cases all other means should first have been considered and no relief expected from them. Neurolysis following fractures and the extirpation, for example, of a neuroma belong to the operations on the peripheral nerves. In all other cases excision of the nerve at the proper location is to be preferred. Because of the danger of trophic

ulcers and possibly motor paralysis only the lateral cutaneous femoral nerve should be attacked. In the cases of "severe" trigeminal neuralgia, central operation is the only one that promises any permanent relief. Alcohol injections into the ganglion are relatively safe, but do not assure relief from recurrence. In addition, there are various threatening dangers to the eye in this procedure as it is uncertain and everyone is not as experienced as Haerdtel or Kienkamp. Therefore, preference must be given to extirpation of the ganglionic ganglion, cutting the root near the ganglion, retroganglionic extracranial neurotomy or cutting the root tangential to the pons according to Dandy. Dandy states that the pain fibers emerge in the outer three quarters of the root. Therefore, it is not necessary to sacrifice wholly the sensibility of the eye. On the other hand, however the intracranial procedure is more dangerous. According to Spiller-Frazier the ramus ophthalmicus is contained (in large measure) in the inner third of the root of the nerve. Therefore, in cases of neuralgia of the other two branches it will be sufficient to cut the lateral three quarters of the root and extirpate the lateral part of the ganglion. In cases of total neuralgia the author prefers extirpation of the ganglion, the danger to the eye not being greater than in cutting the root and the result is definitely free from recurrence. If, however, the pain still persists and the anesthetized area is not very extensive, the pain travels over other paths, that is, the cervical nerves. In order to secure a totally satisfactory result in one instance it was necessary to cut the portio minor, inject alcohol into the sphenopalatine ganglion, and extirpate the cervical sympathetic and the plexus carotici.

Operations on the sympathetic nervous system. Cerebrospinal pain paths communicate with the spinal cord through the anterior roots as well as through the sympathetic trunk and the ram communicans. The pain paths for the abdominal organs reach the spinal cord through the splanchnic nerves and the ram communicans, not through the sixth thoracic nerve. The vagus nerve carries only sensory producing fibers, not fibers for pain. Vascular pain paths are best interrupted by excision of the sympathetic trunk. The results of this method are more enduring (there have been no failures) than those of ramsection or periarterial sympathetomy of the artery. The vascular dilatation resulting from the operation on the sympathicus may be estimated beforehand by plexus anesthesia. The results of this method last for years. The relief of pain which may be expected from an operation on the sympathicus of the arm may be ascertained beforehand by local anesthesia applied to the stellate ganglion (Leriche). If the local anesthesia does not relieve the pain the paths concerned are cerebrospinal. In the case of the leg the author has performed extrapertoneal (sublateral) extirpation of the lumbar sympathetic (from the third lumbar to the second sacral vertebra) adding periarterial sympathetomy of the iliac artery. For the arm he makes the incision be-

hind the sternocleidomastoid, but on account of the depth of the artery he does not perform periarterial sympathectomy.

As to indications, the author mentions chronic ulcers in cases of hypothermia of the skin and pains becoming more aggravated upon further decrease of the skin temperature. In cases of angina pectoris it is usually sufficient to inject the four upper thoracic rami communicantes, otherwise the sympathetic trunk must be excised. Abdominal pain from adhesions or ptosis in the region of the bile passages can be relieved by the injection of novocain at the tenth and eleventh thoracic vertebrae, and pain in the region of the appendix, by injection at the first and second lumbar vertebrae. Extirpation of the presacral nerve mitigates or relieves the pain of rectogenital carcinoma and of tuberculosis of the bladder. This procedure might, for example, be combined with the formation of a palliative anus sigmoideus in order to forestall future pain. If the

cerebrospinal plexus pudendus also should be effected by pressure, the only resource remaining is chordotomy. Coccygodynia and, in one instance, ischias, were cured by weekly injections of 40 c cm of novocain in the hiatus sacralis. The author thinks that these results were due to the toxic degeneration of the non-medullated fibers of the pain paths. Only the pain disappears, not the sense of touch. In operations on the spinal cord the cutting of the posterior roots from the sixth to the eleventh thoracic vertebrae in tabetic crises is at times successful. Bilateral chordotomy, that is, cutting the anterior columns above the sixth thoracic vertebra is usually successful in otherwise intractable tumor pains, but not always. Apparently the gray posterior columns also carry pain fibers, especially from the anogenital region. Ultimately, there may be chronic irritative states of the brain which do not disappear after their cause has been removed.

(VAN GELDEREN) JOHN W. BRENNAN, M.D.

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The author discusses two groups of malignant tumors developing in peripheral nerves, reports eight cases, and reviews cases recorded in the literature.

Of the first and more common group of tumors, the majority are designated as fibrosarcomas while a few are termed malignant neurofibromas. Most of these tumors develop in individuals suffering from von Recklinghausen's disease. They may be present for many years and suddenly take on rapid growth which is usually accompanied by pain. They are generally firm and well circumscribed, although in those of large size areas of necrosis and hemorrhage are found. The author discusses the microscopic morphology of these tumors in detail. In all of his cases the tumor was characterized by persistent growth with a marked tendency to re-appear after attempts at removal. Many cases proved fatal although there were metastases in only 30 per cent of the cases of fibrosarcoma. The tumors are extremely radioresistant.

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The author cites also tumors derived from ganglia situated within various nerves. These were not considered primary nerve tumors. One pigmented paraganglioma of the ganglion nodosum, situated in the vagus nerve, is reported with illustrations.

ROBERT ZOLLINGER, M.D.

MISCELLANEOUS

Suamondt, W. F.: The Surgery of Pain (Die Chirurgie des Schmerzes). *Graefes Bl.* 1935 33: 95

The statements of the author are based on a large number of experiences on the part of himself and Professor Zayner. He distinguishes nerve, vascular tissue and organ pains. Pain is frequently caused by pressure resulting from edema, pus collections, hematomas, or overfilling of organs which press on the peripheral nerve endings. The periaxillary nerve fibers also cause painful sensations, and in addition there are the painful vascular spasms (intermittent claudication, migraine, angina pectoris). Nerve pain may be induced in such cases in which the ilio-inguinal nerve becomes included in a hernia operation. In an amputation it is not sufficient to merely shorten the large nerve trunks. In order to prevent pain a terminal periaxillary sympathectomy of the large arteries should be undertaken before ligating them. The surgery of pain often seeks to relieve pain where the cause of the pain is locatable (tumors). However even in these cases all other means should first have been considered and no relief expected from them. Neurolgias following fractures and the extirpation for example, of a neuroma belong to the operations on the peripheral nerves. In all other cases excision of the nerve at the proper location is to be preferred. Because of the danger of trophic

ulcers and possibly motor paralysis only the lateral cutaneous femoral nerve should be attacked. In the cases of severe trigeminal neuralgia, central operation is the only one that promises any permanent relief. Alcohol injections into the ganglion are relatively safe, but do not assure relief from recurrence. In addition, there are various threatening dangers to the eye in this procedure as it is uncertain and everyone is not as experienced as Haezel or Kulenkamp. Therefore, preference must be given to extirpation of the gasserian ganglion, cutting the root near the ganglion, retrogasserian intracranial neurotomy or cutting the root tangential to the pons according to Dandy. Dandy states that the pain fibers emerge in the outer three quarters of the root. Therefore, it is not necessary to sacrifice wholly the sensibility of the eye. On the other hand, however the intracranial procedure is more dangerous. According to Spiller Fraser the ramus ophthalmicus is contained (in large measure) in the inner third of the root of the nerve. Therefore, in cases of neuralgia of the other two branches it will be sufficient to cut the lateral three quarters of the root and extirpate the lateral part of the ganglion. In cases of total neuralgia the author prefers extirpation of the ganglion, the danger to the eye not being greater than in cutting the root and the result is definitely free from recurrence. If, however the pain still persists and the anesthetized area is not very extensive, the pain travels over other paths, that is, the cervical nerves. In order to secure a totally satisfactory result in one instance it was necessary to cut the portio minor, inject alcohol into the sphenopalatine ganglion, and extirpate the cervical sympathetics and the plexus coroticus.

Operations on the sympathetic nervous system. Cerebrospinal pain paths communicate with the spinal cord through the anterior roots as well as through the sympathetic trunk and the ramus communicans. The pain paths for the abdominal or gaseous reach the spinal cord through the splanchnic nerves and the ramus communicans, not through the sixth thoracic nerve. The vagus nerve carries only causes producing fibers, not fibers for pain. Vascular pain paths are best interrupted by excision of the sympathetic trunk. The results of this method are more enduring (there have been no failures) than those of resection or periaxillary sympathectomy of the artery. The vascular dilatation resulting from the operation on the sympathetics may be estimated beforehand by plexus anesthesia. The results of this method last for years. The relief of pain which may be expected from an operation on the sympathetics of the arm may be ascertained beforehand by local anesthesia applied to the stellate ganglion (Leriche). If the local anesthesia does not relieve the pain the paths concerned are cerebrospinal. In the case of the leg the author has performed extraperitoneal (unilateral) extirpation of the lumbosacral sympathetics (from the third lumbar to the second sacral vertebra) adding periaxillary sympathectomy of the iliac artery. For the arm he makes the incision be-

SURGERY OF THE THORAX

Westermarck, N The Development and Occurrence of Atelectasis in Pulmonary Tuberculosis (Entwicklung und Vorkommen von Atelektase bei Lungentuberkulose) *Acta radiol*, 1935, 16 531

Atelectasis due to obstruction of the lumen of bronchus as the result of
1 An intrabronchial cause—blocking of the lumen by secretion, pus, or blood

2 A bronchial cause—transformation of the bronchial walls into granulation tissue

3 An extrabronchial cause, such as pressure from diseased lymph nodes

In roentgenograms taken in the lateral projection it produces a massive homogeneous concave shadow which is often marked off concavely. It causes displacement of the heart and mediastinum toward the diseased side, a respiratory oscillation of these organs, a subsiding and drawing in of the thoracic wall, and elevation of the diaphragm under lessened respiratory movements. Pleural exudate will occupy a paradoxical position. Bronchography will often reveal multiple occlusions.

Dreyfus-Le Foyer, P Repeated Thoracoplasty (Les thoracoplasties itératives) *Presse méd*, Par, 1935, 43 1474

When a cavity persists after a thoracoplasty performed in one or several stages a still further thoracoplasty operation may be performed. After the first operation new bone may form from the resected ends of the ribs, and even a solid plate of bone covering the whole field may be produced. This was quite common when only a few centimeters of rib were resected, but it occurs even now with extensive costovertebral and chondrocostal disarticulations though the time required for re-ossification is longer.

Repeated thoracoplasty may be indicated in young patients in whom insufficient thoracoplasty has been performed for an apical cavity, limited to resection of the middle arches of the ribs. The cavity is decreased in size, but a considerable cavity still remains. In the first stage of the repeated operation under local anesthesia the posterior arches of the first three or four ribs are removed with costovertebral disarticulation and resection of the corresponding transverse processes. In the second stage by the axillary route the anterior arches of the second, third and fourth ribs are removed and the newly formed plate of bone which has been loosened with the rugine is removed.

In other cases the resections have been larger but still insufficient. A small cavity persisted which has often receded under the "balcony" formed by the necks of the first three ribs and the corresponding transverse processes. Very good results have been obtained in these cases by resecting only these three segments and the transverse processes a few weeks after the original thoracoplasty. In spite of a sufficient thoracoplasty a small cavity may persist in the form of an elongated vertical fissure. This residual cavity may be obliterated by removing the cartilages of the first four ribs.

In the majority of cases quite a large cavity covered with a plate of newly formed bone persists. The plate must be removed, and this is the dangerous part of the operation. The bone is friable and distant only a few millimeters from a lung cavity that is still active. If the general condition permits it, the operation should be performed under general anesthesia.

The operation is done through a vertical incision made midway between the spinous processes. The incision is extended down to two fingerbreadths below the lower angle of the scapula and up to a point 3 or 4 cm above the spine of the scapula. The upper third of it is cervical. The posterior surfaces of the spinous processes are rasped carefully with a rugine for the distance covered by the newly formed bone. No attempt is made to remove the bone plate directly. There is too much danger of penetrating cavities. The costotransverse articulations are opened, the interosseous ligaments sectioned, and the stumps of the necks sectioned or disarticulated. Then, by pulling from below upward and from within outward on the sectioned or disarticulated stumps with Museux forceps, the plate can be lifted slightly, a rugine slipped under it, and it can be liberated entirely. Pleural cavities may be described in this way. Illustrative cases are described.

This operation is long and difficult and must be performed with great care and patience. In some cases it is the only means of effecting a cure. Its indications must be carefully studied, particularly in pulmonary tuberculosis, as without such study there is danger of doing more harm than good.

AUDREY GOSS MORGAN, M D

Goia, I, Daniello, L, and Hanganutz, M The Pseudotuberculous Forms of Malignant Lymphogranuloma (Considérations sur les formes pseudotuberculeuses de la lymphogranulomatose maligne) *Arch méd chir de l'appar respir*, 1935, 10 283

The authors state that pulmonary localization of malignant lymphogranuloma (Hodgkin's disease) was formerly considered to be rare, but roentgenological examination has demonstrated that the disease not infrequently involves the lungs and pleura.

Of 120 cases of Hodgkin's disease observed by them, pleuropulmonary lesions were found in 47. The clinical symptoms and roentgen signs of pleuropulmonary involvement in Hodgkin's disease vary widely. In some cases they simulate mediastinal and pulmonary tumors whereas in others they closely resemble those of pulmonary tuberculosis. The tumoral types are usually diagnosed with ease, but the pseudotuberculous types are often difficult to differentiate from tuberculosis. In some cases pleuropulmonary Hodgkin's disease and tuberculosis may be associated.

Malignant lymphogranuloma may simulate the various forms of pleuropulmonary tuberculosis. In the authors' cases the following types were found:

SURGERY OF THE THORAX

CHEST WALL AND BREAST

Malinbak, J. W.: The Pendulous Hypertrophic Breasts: Comparative Values of Present Day Methods of Repair and the Procedure of Choice. *Arch Surg* 1935, 31: 387

There are four main types of breast hypertrophy: (1) true hypertrophy which is rare (2) fatty hypertrophy the most common type (3) hypertrophy due to mastitis, nodules, and cystic fibrosis and (4) congenital hypertrophy in which the breasts are asymmetrical

The indications for a plastic operation on the hypertrophied female breast depend upon the age of the woman and her attitude toward the deformity the presence or absence of effects of the deformity such as excessive perspiration and dermatitis in the submammary region and the extent to which the deformity interferes with the patient a normal social and economic life

Malinbak traces the development of plastic surgery of the breast from 1897 to the present time and compares the various operative procedures. He describes a two-stage operation which he found very successful in thirty cases

In the first stage of the operation he transplants the nipple and areola to their future location and at the same time removes most of the excess skin and occasionally some fatty tissue from the posterior half of the breast. This is done as follows: An incision is made through the skin around the areola and connected with an elliptical incision through the anterior skin extending from the lateral to the medial breast folds. A similar elliptical incision is made near the posterior breast fold but not connected with the incision around the areola. The skin between the two elliptical and the areola is then removed. Next, a button hole incision is made in the anterior skin of the breast at the future location of the nipple and after undermining of the skin the areola is sutured into it. By this means the breast tissue is raised and transplanted. The skin of the upper and lower incisions is then united. When the areola has taken and the wounds have healed at the end of six weeks, the second stage operation is performed. The breast is then reduced in size by the removal of a wedge shaped piece of skin and fat and possibly some glandular tissue from the posterior and inferior half of the gland. The operation can be performed on both breasts at the same time

Malinbak regards this procedure as superior to others because of its simplicity, the preservation of the nipple and blood supply, the absence of visible scars, and the excellent cosmetic results

SCOTT PHELSON, M.D.

TRACHEA, LUNGS, AND PLEURA

Colledge, L., Ormerod F. C., Kitch, H. Peters, E. A., and Others: Discussion on Obstruction of the Trachea. *Proc Roy Soc Med Lond* 1935, 28: 1587

COLLEDGE stated that the causes of tracheal obstruction can be divided into (1) extrinsic lesions which cause compression of the trachea, and (2) intrinsic diseases in the tracheal wall. In the first group is a large variety of conditions such as mediastinal tumors, enlarged glands, and aneurysms. The most common in this group are goiters and cancers of the esophagus.

In the case of the benign goiter the location for treatment is clear. Enough of the goiter—whether in the neck or in the chest—should be removed to relieve the pressure on the trachea. Most difficulty is presented by the dyspnea which is caused by malignant goiter and is often accompanied by paralysis of the vocal cords. The same applies to esophageal cancer which gives rise also to this complication. In malignant goiter whether the cords are paralyzed or not, no attempt should be made to do a tracheotomy. Deep X-ray irradiation should be used instead.

Intrinsic disease of the tracheal wall, such as tuberculosis, syphilis, and cancer is rare.

ORMEROD said that when intubation of foreign bodies is eliminated from this discussion the lesions arising within the lumen of the trachea become very few.

There are two main groups of obstructions caused by lesions arising in the trachea: catarrhal stenosis (syphilis or long use of a tracheotomy tube) and new growths from the trachea itself or pressing upon it from an adjacent organ. Symptoms of tumor in the trachea are dyspnea, pressure behind the sternum or on the larynx, blood stained sputum, and stridor. The voice is affected only when the recurrent nerves are involved and this involvement is surprisingly uncommon.

KITCH reported a case of adenocarcinoma of the trachea which he tracheotomized and then applied radium to the growth which he could so view. The growth disappeared.

PETERS reported the cases of two soldiers who had been shot through the trachea.

HOWARTH described an esophageal growth which gave rise to tracheal symptoms.

SCOTT suggested that the possibilities of approach through the chest into the bronchi for relief of dyspnea have not yet been exhausted.

ADAMS described a case that was temporarily improved by radium.

J. THOMAS WILLIAMS, M.D.

SURGERY OF THE THORAX

Jaffé, R. H. *The Primary Carcinoma of the Lung*
J Lab & Clin Med, 1935, 20 1227

Of 6,800 autopsies performed in the Cook County Hospital, Chicago, in a period of six years, carcinoma was found in 871. One hundred (11.47 per cent) of the carcinomas were in the lung. Among the most common cancers, carcinoma of the lung was third in frequency, carcinoma of the stomach being found in 185 cases and carcinoma of the intestine in 118. Previously, Jaffé reported the incidence of pulmonary carcinoma among all carcinomas as 10.73 per cent. He believes that the increase is more apparent than real.

In discussing the etiology of pulmonary carcinoma he says "In general it may be said that in the majority of the cases at the time of death the tumor has advanced so far as to obscure any preceding or predisposing local changes." However, he states that in 20 per cent of the cases there is anatomical or serological evidence of syphilis. In 7 cases his anatomical findings suggested that the carcinoma had stimulated to active progression a silent pre-existing tuberculosis. In no case did he find carcinoma formation from metaplastic epithelium of an old tuberculous cavity. He discusses the incidence of carcinoma in relation to sex, age, and race, and in different parts of the lung, and describes the microscopic changes in detail.

In only 2 of Jaffé's 100 cases were no metastases found at autopsy. In 57 cases the duration of the illness was less than six months and in only 10 did the patient live a year. Jaffé has found no relationship between the size of the primary tumor or the extent of metastasis and the duration of the illness. The average duration of life in his cases was eight months when the carcinoma was of the central type and five months when it was of the peripheral type.

Pathologically, Jaffé distinguishes a central, an intermediary, and a diffuse type of pulmonary carcinoma. The peripheral type seems to present the greatest diagnostic difficulty. Microscopically, the majority of peripheral carcinomas are composed of undifferentiated round cells which are apparently derived from the basal cells of the bronchi. The high incidence of squamous-cell carcinoma in the lung suggests a relationship to epithelial metaplasia. Other types of pulmonary carcinoma are the adenocarcinoma, the mucous carcinoma, the carcinoma simplex, and the scirrhous carcinoma.

Mentioned in order of decreasing frequency, the clinical symptoms were (1) a loss of weight of from 10 to 60 lbs and weakness, 57 cases, (2) pain in the chest, often sharp and shooting, 34 cases, (3) a persistent cough (among the first symptoms), 54 cases, (4) blood-streaked sputum, 22 cases, (5) dyspnea, 28 cases, (6) dysphagia, 5 cases, (7) hoarseness (the first symptom), 3 cases, (8) epigastric or abdominal pain without subjective symptoms referred to the chest, 14 cases, (9) anoxia, nausea and vomiting without subjective symptoms referred to the chest, 10 cases, (10) constipation, 5 cases, and (11) symptoms referable to the central nervous system, 13 cases.

Surgical treatment may require operation performed in multiple stages. In the absence of adhesive pleurisy corresponding to the point of infection, operation is contra-indicated because of the danger of an infected pneumothorax. As a rule, simple incision is sufficient to cure a simple abscess. The marked fibrosclerotic reaction which surrounds the wall of the fetid abscess usually requires the removal of a large section of the abscess wall in addition to incision and evacuation of the pus. The multiple abscesses which characterize the chronic suppurative process are best treated by resection of the portion of lung involved. All the diseased lung must be removed. Gangrene, which seems rarely to respond to any type of therapy, is best treated by early drainage. For abscess secondary to bronchiectasis, lobectomy is the treatment of choice.

The author reports a series of cases in detail and presents the roentgenograms. **A. Louis Rosi, M.D.**

Kramer, R., and Som, M. L. *A Further Study of Adenoma of the Bronchus*
Ann Otol, Rhinol & Laryngol, 1935, 44 861

Kramer, in 1930, reported the first clinically and bronchoscopically diagnosed cases of adenoma of the bronchus. This article is a more amplified report dealing with a total of 23 cases.

Many persons with a bronchial adenoma suffer for years from repeated hemoptysis, lung suppurations, and empyema. Secondary changes in the lungs make restoration to normal difficult. Early removal of the tumor offers the chance of complete cure.

Adenomas usually occur in bronchi of the first or second order. They present a smooth polypoid appearance. As a rule they are globular and sessile, but occasionally are pedunculated. Although they are benign growths with no invasive or metastatic properties, they may be confused with adenocarcinoma and small-cell carcinoma. Of 355 bronchial tumors, 23 (6 per cent) were adenomas. Bronchial adenomas are most common in women in the third and fourth decades of life.

The clinical symptoms may be attributed to irritative phenomena, such as hemoptysis, cough, and asthmatoïd symptoms, caused by the tumor mass per se, or to changes in the lung resulting from obstruction of the bronchial lumen, recurrent pneumonia, pleurisy, pyothorax, chronic pneumonitis, bronchiectasis, atelectasis, or secondary lung abscess. While the tumor is still small there may be no symptoms.

The prognosis varies with the time elapsing before the diagnosis is established. A favorable prognosis depends entirely on removal of the tumor before permanent damage has been done to the lungs and bronchi. Total removal of the tumor in an early phase is followed by complete cure. If possible, the tumor should be removed through the bronchoscope and the patency of the bronchial lumen re-established. When the bronchial wall is involved, surgical removal by thoracotomy is indicated.

JACOB M. MORA, M.D.

1. The pleural type. This occurred in 25 cases. In 65 per cent there was an accompanying ascites. The pleurisy of Hodgkin's disease is usually a symptom of the common type of the condition, but may occur as an initial symptom. When it is a primary symptom, it suggests tuberculous pleurisy. The pleural exudate is usually serofibrinous, but the sediment is made up of lymphocytes alone. The exudate forms rapidly necessitating frequent punctures. However, the pleurisy is more chronic and more steadily progressive than tuberculous pleurisy. The dyspnea which accompanies it and is out of proportion to the amount of pleural exudate is often due to mediastinal or pulmonary lesions that are masked by the collection of fluid. Even if there are no mediastinal or pulmonary lesions, the presence of pleurisy in Hodgkin's disease renders the prognosis serious. Death usually occurs in a few months or a few weeks after the onset of the pleurisy. The pleurisy is therefore of a much more malignant type than tuberculous pleurisy.

2. The pseudo-pleuritic type. In this type the clinical symptoms and roentgen findings suggest an abundant collection of fluid in the pleural cavity but no fluid is obtained on puncture. As a rule there is a mediastinal or pulmonary involvement.

3. The lobar type involving a single lobe of the lung. This is rare. It may occur without involvement of the mediastinum or the glands of the hilum.

4. The gangliopulmonary type. This is one of the most frequent types of pulmonary lymphogranuloma. It was found in 2 of the authors' cases.

5. Pulmonary lymphogranuloma associated with pulmonary tuberculosis. This can be proved only at autopsy and often only by careful histological study. Of the authors' cases of pleuropulmonary lymphogranuloma which came to autopsy the association of the 2 diseases was demonstrated in 40 per cent.

The pseudotuberculous form of malignant lymphogranuloma is characterized by the association of pleuropulmonary symptoms with symptoms of mediastinal tumor compression, a rebellious cough of a convulsive character, severe dyspnea out of proportion to the pleuropulmonary lesion demonstrated, pleurisy of a persistent and malignant character with rapid deterioration of the general condition, and co-existence of the pulmonary syndrome with the cardinal symptoms of Hodgkin's disease and the characteristic blood changes.

When the pleuropulmonary syndrome is the only clinical manifestation of Hodgkin's disease it is difficult to establish the diagnosis even by roentgen examination. The findings most suggestive of Hodgkin's disease in such cases are the presence of mediastinal lesions, which may not always show the typical rounded outline of a tumor and peribronchial lymphangitis with wide opaque peribronchial bands which are more extensive than those observed in tuberculosis.

Another criterion of value in the diagnosis is the quick response of the lesions of Hodgkin's disease to

X-ray treatment. Roentgen irradiation causes regression not only of the lymphogranulomatous lesions but also of the associated congestion whereas it does not always have such an effect on the pleural lesions.

ALICE M. MIRREA.

Galbi, R.: A Contribution to the Surgical Treatment of Pulmonary Suppurations (Contributo alla cura chirurgica delle suppurazioni polmonari). *Riforma med.* 1915 57 137.

Pulmonary suppurations, at one time hopeless, are now often cured by surgical treatment. A classification of these lesions on the basis of their pathogenesis is not practical. The author classifies them into the following five groups:

1. Simple abscess. This most common form of suppuration usually follows a acute pulmonary inflammation. It is characterized by the absence of a foul odor and by a mild and relatively benign course with a marked tendency toward spontaneous cure in a period of several weeks.

2. Fetid abscess. The fetid nature of the suppuration is characteristic even from the beginning of the formation of the abscess, which may be infectious and follow a mild pulmonary infection such as the common influenza. Pathologically the fetid abscess does not differ much from simple abscess.

3. Chronic suppuration. This represents the late stage of both forms of abscesses. Not infrequently there are multiple localized areas of suppuration. Secondary bronchiectasis may result from the accompanying fibrosis.

4. Pulmonary gangrene. Acute pneumonitis disseminata often begins suddenly and is usually fatal no matter what type of treatment is given.

5. Pulmonary abscess secondary to bronchiectasis. This occurs in the patient with long-standing atelectases who has been toxic for many months. Sometimes a more virulent inflammation begins in one of the bronchial sacs and extends to produce peribronchitis and an abscess.

Of the many types of treatment suggested heretofore, few have been successful. Medical treatment does not seem warranted except possibly in the amebic form. Abscesses which heal under medical treatment are usually of the simple variety which may heal spontaneously. In cases of abscesses of other types this treatment is unsuccessful and the loss of time during its use may reduce the benefit of later surgical treatment. Pneumothorax is rarely beneficial. In fact, it may be very dangerous because a fatal empyema may develop. The principle of collapsing an abscess seems wrong. Theoretically however compression may be of some value in cases of centrally located abscess and abscess near the hilum which have already ruptured into a bronchus. Practically this is uncommon. Phrenicectomy is of no value alone, but may be of aid in other surgical attacks on abscesses near the base of the lung. Thoracoplasty is of value not in the treatment of the abscess, but in the attack on the bronchiectasis often secondary to abscess.

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degrees T. Roentgen examination revealed an increase in the transverse measurements of the heart shadow, an increased supracardiac shadow, and a marked increase in the lung-hilus shadows. The electrocardiogram showed a normal rhythm with late inversion of the T wave in Leads 1 and 2. The general physical examination disclosed marked ascitic distention of the abdomen and prominence of the jugular veins. Abdominal paracentesis yielded 4,500 cc of clear straw-colored fluid with a specific gravity of 1.018. For three years the patient lived the life of an invalid, was given digitalis and other drugs, and had repeated abdominal tapings. In 1927 her legs began to swell. Later she developed dyspnea and marked edema of the face and upper part of the body. In 1928 an anterior pericardial resection with the removal of a band compressing the inferior vena cava was done. A very thick pericardium constricting the right auricle and right ventricle and the great veins was found and an area of pericardium the size of the hand was removed. The operation was followed by prompt improvement with disappearance of the edema, ascites, and liver enlargement. For the past seven years the patient has been in excellent health.

Since the report of this case seven years ago the author has collected fourteen cases of Pick's disease. He classifies them into five groups and reports them in detail. Group A consisted of six cases of the type most amenable to treatment, Group B, of one case in which operation resulted in marked relief but not a complete cure, Group C, of three cases in which death resulted primarily from the lesion, in two shortly after operation and in one without operation, Group D, of three cases in which death resulted from postoperative complications which included otitis media, empyema, wound infection with a draining pericardial sinus, pulmonary edema, and bronchopneumonia, and Group E, of two cases of a milder degree of constriction not proved by operation but showing characteristic signs and X-ray evidence of pericardial calcification.

Nine of the fifteen subjects of the disease were males, fourteen were white persons, and one was a negro. The ages ranged from five to fifty-two years. The oldest patient operated upon successfully was thirty-one years old. In ten cases the cause of the condition was undetermined. In two, it was tuberculosis, in two, pneumonia with polyserositis, and in one, sepsis. In no case was rheumatic infection responsible. In all cases there was enlargement of the liver with ascites. Other symptoms were dyspnea, edema of the feet and ankles, edema of the face and upper part of the body, soreness in the upper right quadrant, weakness, and (in two cases) fever. The two constant signs were enlargement of the liver with marked ascites and engorgement of the jugular veins. Before operation the venous pressure was usually between 20 and 30 cm., at least three times the normal. Enlargement of the heart was not uniformly present. Systolic murmurs were noted in three cases and auricular fibrillation was found in four. In

eleven cases the blood pressure was low, and in seven there was a well-marked Griesinger-Kussmaul pulse. Broadbent's sign was not present. Roentgen examination showed the heart shadow enlarged in eight cases. The supracardiac shadow was increased by dilatation of the superior vena cava. In six cases the heart was more or less anchored with or without restriction of the movements of the diaphragm. Pericardial calcification was present in only six cases. The electrocardiogram was abnormal in all cases, usually because of an inversion or flattening of the T waves in Lead 1 or 2 or both.

In the differential diagnosis, mitral stenosis, polyserositis, cirrhosis of the liver, nutritional or other disease must be considered.

Cases of chronic constrictive pericarditis have a poor prognosis for health unless they are suitable for, and are treated by, operation. Patients with the condition in a mild or only moderately severe form may live a semi-invalid life for many years, and require much rest and repeated abdominal paracenteses.

The so called Delorme operation is the only cure for Pick's disease. Brauer's operation (cardiolysis, thoracocentesis) cannot help in the least to free the heart from its shell of fibrous pericardium. The four essentials for successful operation are (1) a correct diagnosis, (2) the selection of patients who are reasonable risks for the extensive operation, (3) an expert anesthetist, and (4) an experienced thoracic surgeon who is bold and yet cautious and who will do enough and yet not too much.

The operation is performed under ether anesthesia. The pericardium and heart are exposed by the removal of the fourth, fifth, and sixth left costal cartilages and rib ends and the left part of the sternum. The left pleura is then identified and retracted and the pericardium opened in the most favorable spot. It is best to free the left heart chambers before the right in order that there may be no flooding of the pulmonary circulation when the right chambers are freed.

The main part of the operation is the decortication of the heart. Both blunt and sharp dissection are used to liberate the heart from its constricting pericardium, which may be a thick parietal pericardium or a dense epicardium, or both securely or even inseparably united. The thickened or possibly calcified pericardium is cut away in pieces averaging from 1 to 4 sq cm in size. The cardiac apex, the anterior surface of the right ventricle, the anterior surface of the right auricle, the diaphragmatic surface of the heart, and the inferior and the superior vena cava are freed as far as possible.

The operations in the cases reported by White were done by Churchill.

In conclusion White says that in the treatment of chronic constrictive pericarditis digitalis therapy and omentopexy by the Talma method are ineffective and should be abandoned.

J. DANIEL WILLEMS, M.D.

According to Heis and Fahlstedt, constipation is caused by involvement of the proximal portion of the colon due to pressure over the vena in the hilum of the lung.

The diagnosis was made correctly before death in 59 cases. The importance of bearing the condition in mind is shown by the fact that after the demonstration of as many of these cases as possible at the pathological conferences at the clinic, the incidence of diagnostic error decreased from 47.5 to 30 per cent. Jaffé emphasizes the value of biopsy on tissue obtained by means of the bronchoscope or otherwise.

MIRIAM JOHANNES, M.D.

Overholt, R. H.: Pneumectomy for Malignant and Suppurative Diseases of the Lung. *J. Thoracic Surg.* 1935, 5: 54.

Overholt reports his results in six cases in which pneumectomy was done for carcinoma and in two in which it was done for pulmonary suppuration. He takes up problems referred to only in the most recent literature. Among the points in controversy he includes:

1. The justification for exploratory thoracotomy in the presence of negative bronchoscopic findings.
2. The necessity for preliminary pneumothorax and the period of time it should be carried out.
3. The type and management of the anesthetic employed.
4. The anterior versus the posterolateral approach.
5. Mass ligation versus separate ligation of the structures in the hilum.
6. The necessity for drainage of the remaining space.
7. The closure of the thoracic wound.
8. The necessity for thoracoplasty.

Overholt uses the following plan for the study of his patients:

1. Anteroposterior oblique, and lateral roentgenography of the chest.
2. Bronchoscopy to determine the location, extent, and position of the growth and to obtain a biopsy specimen if possible.
3. A search for metastases in the long bones, skull, spine (roentgen examination) and the suprarenal glands (biopsy).
4. Electrocardiography and determinations of the circulation time, the vital capacity and the total lung volume.
5. Preliminary pneumothorax and revaluation of the circulatory and pulmonary functions.
6. Intrapleural thoracoscopy to determine the presence of metastases in the pleura or the mediastinum.

He gives in detail his reasons for this plan and describes in detail the course in the eight cases he reports.

Overholt states that he uses cyclopropane intratracheally because it insures adequate oxygenation with minimal thoracic excursions and minimal requirements of lung volume.

Recovery resulted in three of the author's cases of pneumectomy for carcinoma of the lung and in both of those in which the operation was done for suppurative disease. The mortality in the eight cases was 27.5 per cent.

MIRIAM JOHANNES, M.D.

Gosselin, G.: Pleural Empyema in Children. *Ann. Surg.* 1935, 77: 145.

The author reviews 159 cases of empyema in children up to fifteen years of age. He describes the method of treatment and discusses the indications. The usual treatment was radical operation. Of 151 patients with unilateral pleural empyema, 135 were subjected to radical operation, and of these, 115 recovered.

The patient's age was of importance in the prognosis. The mortality was highest in the cases of infants—7 deaths in 14 cases—and lowest in those of children between five and ten years of age—7 deaths in 50 cases.

Also of importance in the prognosis was the type of bacteria. The prognosis was most unfavorable in streptococcal empyema and empyema with mixed infection.

Six cases with the diagnosis of bilateral pleural empyema are reported briefly.

The most common complication was abscess. Ne phritis and pericarditis were less common, but had a more unfavorable influence on the prognosis.

HEART AND PERICARDIUM

White, P. D.: Chronic Constrictive Pericarditis Treated by Pericardial Resection. *Lancet*, 1935, 230: 596, 597.

White reports fifteen cases of chronic constrictive pericarditis (Pick's disease) and reviews the literature on the condition.

Chronic constrictive pericarditis consists of a chronic fibrous or callous thickening of the wall of the pericardial sac which causes it to become so contracted that normal diastolic filling of the heart is prevented. The establishment of the diagnosis, which is very difficult, is exceedingly important for the following three reasons: (1) it affords the explanation of a group of symptoms and signs in an obscure and puzzling case; (2) it obviates confusion with other conditions; and (3) it points the way to expert thoracic surgery which now may lead to the cure of a previously hopeless disease.

The first surgical cure in America was obtained in the case of a girl fifteen years old. In 1925 this patient stated that eight years previously she had suffered for two months from smothering spells, fever, enlargement of the liver and fluid in the abdomen. She was then well for seven years. In 1934 she had a peritoncular infection followed by smothering, enlargement of the liver and fluid in the abdomen. Auscultation of the heart revealed a systolic murmur at the apex and a third sound. The liver was enlarged, the blood pressure varied from 130/80 to 95/60, and the temperature reached 103

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are of two types those which perforate directly, and those which perforate by erosion.

Many perforations which at first are not complete may be completed by straining, vomiting, hawking, the pushing of fingers or a spoon down the throat, or the swallowing of hard crusts. Instrumental perforations are uncommon.

The majority of perforations occur into the cellular spaces surrounding the esophagus. The authors present the findings of a detailed study of these spaces, their boundaries, fascias, and contained viscera.

The important evidences of perforation of the esophagus by a foreign body are awareness that something has stuck in the throat, pain, dysphagia, blood-streaked sputum, local tenderness on pressure over the trachea, increased pain on movement of the larynx or trachea toward the point of tenderness, and, in some cases, subcutaneous emphysema.

Except in cases of eroded perforations, diagnosis by esophagoscopy is inferential only. Therefore any wound of the esophageal mucosa should be regarded with suspicion. The best means of diagnosis is roentgen examination. Barium sulphate paste of the consistency of thick cream should be given and fluoroscopic observations made. The presence of a

foreign body or a perforation is suggested by a "hold-up" or "hitch" of the opaque material, retention of a trace of the opaque material for from ten to thirty minutes, or division of the opaque material into two streams. If perforation has occurred one or more of the following signs may be observed: the presence of air in the paroesophageal spaces, displacement of the esophagus, an increase in the space between the cervical vertebrae and the trachea, a tumor in the thoracic region, widening of the mediastinal shadow, the passage of the opaque material into the tracheobronchial system or anywhere outside the esophagus.

Infection may follow perforation and proceed to suppuration, the formation of a localized abscess, or generalized cellulitis of the para-esophageal spaces.

The treatment should be conservative and expectant except in cases of known perforation with abscess. An abscess should be drained by endoscopic means if possible. If it is located above the fourth thoracic vertebra its drainage may require gastrostomy combined with a transcervical mediastinotomy by the method of Furstenberg. If it is located below that level, a posterior thoracic mediastinotomy may be necessary.

J DANIEL WILLEMS, M D

Shipley, A. M., and Winalow, N.: Purulent Pericarditis: A Report of Five Cases in Which Treatment was by Pericardiectomy and a Review of the Literature from April 24, 1927 to January 1, 1934. *Arch Surg* 1935, 5: 171.

The authors emphasize the importance of early incision and drainage in purulent pericarditis, but state that there is a chance for cure even when operation is performed late. Operative treatment should yield a cure in 50 per cent of the cases. The best approach is the costophrenic route with resection of the left seventh, sixth, and fifth costal cartilages, together with a portion of the sternum if more room is needed. Although therapeutic aspiration may be beneficial, it will not cure. The prognosis depends chiefly upon:

(1) the time at which the operation is performed, (2) the type of the infecting organism, and (3) the original condition of which the pyopericardium is a complication. It is less favorable if purulent foci elsewhere in the body are not recognized and treated early. Pyopericardium is a disease of youth, occurring in 83 per cent of cases before the thirtieth year of age. Seventy per cent of the subjects of the condition are males. Troublesome postoperative pericarditis is not so frequent as is generally believed.

In 1937 the authors collected 118 cases from the literature and reported 9 of their own. In this article they review 94 additional cases collected from the literature and report in detail 5 of their own. Three of their own patients recovered and 2 died after the operation. In 4 of their cases the condition was secondary to a respiratory tract infection and in 1 it followed scarlet fever.

The primary factors in cases reported in the literature were: (1) disease of the upper respiratory tract including pleurisy, 44 cases, (2) tonsillitis, 5 cases, (3) various suppurations, 9 cases, (4) scarlet fever, 2 cases, (5) tooth extraction, 1 case, (6) actinomycosis, 1 case, (7) dissection of submandibular triangles for carcinoma of the lip, 1 case and (8) gunshot or stab wounds, 8 cases.

Diagnostic puncture may be of value, but may also result in a dry tap in spite of the presence of pus. It is condemned by many because it exposes the patient to the danger of injury of the heart, the pleura, the intercostal or coronary vessels, or the peritoneum. For the prevention of complications exposure of the pericardial sac is advised. The pus varies in amount from a few drachms to 500 c. cm. after it is under high pressure. It has been described as foul, yellow, turbid, serohemorrhagic, sanguinolent, blood-tinged, thick, fetid, thin, creamy, chocolate, liquid, greenish murky and yellowish-green. The rapidity with which it accumulates in the pericardium is of importance. The more rapid its accumulation the greater the embarrassment of the circulation.

The symptoms are inconstant. The heart sounds are distinct because of the proximity of the apex to the anterior wall. The pulse is quickened and the heart action weakened. The blood pressure is usually low. Dyspnea and cyanosis are common. A

pericardial friction rub may be present, but is a fleeting sign. A paradoxical pulse is fairly constant, but may be absent. In cases with a large amount of effusion and in the cases of children there may be a bulge between the cartilages. The usual evidences of sepsis, namely fever, sweating, exhaustion, and leucocytosis, are always present to a varying extent.

The diagnosis depends largely on recognition of the disease of which the pyopericardium is a complication. When a patient is suffering with empyema, abscess of the lung, osteomyelitis, or suppuration in the abdomen and continues to be ill after the institution of adequate drainage, the possible presence of pyopericardium should be considered. A careful examination of the chest, including an X-ray study and, if necessary, paracentesis pericardi should reveal the presence of pyopericardium.

The treatment of purulent pericarditis consists of a surgical approach to the pus and the establishment of proper drainage with irrigation. Various methods of approach are described in detail.

MIRAS JOANNIDES, M. D.

ESOPHAGUS AND MEDIASTINUM

McGibbon, J. E. G., and Mather, J. H.: Perforation of the Esophagus by Swallowed Foreign Bodies. *Lancet* 1935, 92: 595.

Neoplasm is the most common cause of perforation of the esophagus. Perforation by swallowed foreign bodies ranks second in frequency even though it is often unrecognized.

The author reports three cases of perforation of the esophagus by a foreign body. The first was that of a woman thirty-two years old who, while eating rabbit, had a bone stuck in her throat. Physical examination disclosed no abnormality, but roentgen examination showed a hitch in the passage of barium paste. Esophagoscopy revealed a small wound but no foreign body and perforation was not suspected. One week later the patient died unexpectedly. Autopsy showed a purulent infection of the entire retro-esophageal and retropharyngeal spaces, but no foreign body.

The second case was that of a man twenty-six years old who, while eating fish, felt a pain in his throat. Nothing abnormal was found on physical examination, but roentgen examination showed a large accumulation of air in the mediastinum and esophagoscopy revealed a small wound. The patient gradually recovered.

The third case was that of a woman twenty-two years old who also had a fish bone stuck in her throat. Physical examination disclosed no abnormality, but roentgen examination three days later revealed a post-esophageal swelling interpreted as an abscess or air in the mediastinum. Esophagoscopy disclosed an acute esophagitis but no foreign body. The patient recovered.

Perforations through the thoracic portion of the esophagus are more serious than perforations through the cervical portion. Foreign bodies which perforate

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ABDOMINAL WALL AND PERITONEUM

Douglas, J.: Mesenteric Vascular Occlusion. *Ann Surg* 1935, 6: 63d.

Of eleven patients with mesenteric vascular occlusion seven died and four recovered. The pathological changes found in specimens removed or recorded in autopsy reports were compared with those of thirty-six autopsy studies made at the Mayo Clinic which were reported by Larson. In Larson's series a vascular occlusion was noted in every case. In only two of Douglas' cases—one of which was fatal—was a thrombosis of the mesenteric vessels discovered. Thus, in the author's reports which showed no gross thrombosis or embolism although there was gross damage to the intestinal wall, it was suggested that in a certain number of cases the infarction began in the smaller vessels, either close to, or in, the vessel wall and in some instances was perhaps due to an anaerobic infection originating in the intestine.

Attention is called to the difficulty of formulating a definite syndrome in a condition in which the pathological lesion may be so different. Recognition of the etiological factors such as arteriosclerosis, atheroma, cardiac disease, aneurysm, abdominal trauma, a history of phlebitis or polycythemia, or chronic sepsis might suggest that in the presence of acute abdominal symptoms mesenteric occlusion was the causative factor. When the signs pointing to an acute abdominal catastrophe are a high leucocyte count with acute abdominal pain, a previous history of thrombosis or a source of embolism, an early subnormal temperature, abdominal rigidity and melena, one has a definite group pointing to mesenteric occlusion. However it is questionable whether a correct pre-operative diagnosis is made any more frequently now than in 1913 when Trotter reported that a pre-operative diagnosis was made in only 3 of 360 cases which he reviewed.

More favorable mortality statistics in the literature and in the small group of cases considered in the author's report seem to indicate the advisability not only of early operation but of immediate resection and anastomosis rather than an ileostomy or exteriorization as a palliative measure.

Douglas reports a case with a previous history of thrombosis in which blood later appeared in the stools and a plain roentgenogram demonstrated the loop of intestine involved, rendering possible a pre-operative diagnosis and showing where the operative incision should be made and the extent of the involvement. Operation demonstrated the site of a previous incomplete vascular occlusion in another loop of intestine in which circulation had been re-established.

(CHARLES BABCOX, M.D.)

Arncliffe A., and LeFebvre C.: Mesenteric Infarcts (Infarctes du mésentère). *J de chir* 1933 46: 45.

Arncliffe and LeFebvre believe that mesenteric infarcts are due as a rule to the occlusion of a mesenteric artery or a mesenteric vein or both.

The local factors favoring their formation may be subdivided into mechanical processes such as abdominal trauma, the presence of foreign bodies, functional pathological processes such as gastritis, constipation, and diarrhea, and organic pathological processes such as gastroduodenal ulcers, infarctions such as those of dysentery, typhoid fever, appendicitis, and parasitic infections, tumors of the digestive tract, cirrhosis of the liver, cholecystitis, cholelithiasis, splenomegaly, pancreatitis, splanchno-ophoritis, uterine fibromyoma, ovarian cysts, carcinoma of the cervix, and the renal lesions which are usually associated with cardiac or vascular disturbances, forcible dilatation of urethral strictures, suppurative orchitis and prostatitis.

In the group of general causes are included all the disturbances referable to the circulatory system especially arteriosclerosis, specific and non-specific arteritis, Buerger's disease, and venous thrombosis. In this group belong also blood dyscrasias such as purpura and hemophilia. Anaphylactic shock has also been included. Mesenteric infarcts have occurred also following pneumonia and focal and general infections.

The authors include in this group diabetes, obesity, lead poisoning, alcoholism, morphine addiction, the excessive use of tobacco, and endocrine disorders such as thyrotoxicosis and adrenal tumors.

Mesenteric infarcts occurred postoperatively in 71 of 400 cases studied by the authors.

The third group includes 97 cases of mesenteric infarction of unknown etiology.

In describing the clinical picture of this condition the authors emphasize the sudden onset accompanied by severe pain which is localized mainly in the right iliac fossa and the umbilical and epigastric regions. Vomiting and a serous sanguinous diarrhea usually follow. However there is no sign, either subjective or objective, which is pathognomonic of the condition. Therefore, the diagnosis is often difficult. The condition is most often confused with peritonitis and acute appendicitis.

The mortality in the authors' series of cases was 73.5 per cent.

Pathogenetically, the circulatory disturbance alone is not the only causative factor. The action of the nervous system, the intestinal infection, and the anaphylactic or toxic shock must also be taken into consideration.

The treatment is usually surgical and depends upon the extent and degree of the lesion. Perhaps

in the future certain drugs will be found beneficial, especially those which have a vasodilating and antispasmodic action and combat shock

RICHARD E SOMMA

Rasmussen, H Mesodermal Tumors of the Omentum, Mesentery, and Retroperitoneal Space (Tumeurs mésodermiques de l'épiploon, du mésentère et de l'espace rétroperitonéal) *Acta chirurg Scand*, 1935, 77 61

The author discusses cystic and solid mesodermal tumors of the omentum, mesentery, and retroperitoneal space on the basis of personal cases and cases reported in the literature. He reports one case of blood cyst, four cases of sarcoma, two cases of fibroma, one case of lipoma, and one case of tumor of the omentum in which the histological diagnosis was not clear and the neoplasm may have been an inflammatory tumor.

The symptoms of the tumors discussed vary greatly as they are due to compression of other organs.

The diagnosis is difficult, but could probably be made more frequently if the possibility of such tumors was borne in mind and a roentgen examination made of the colon and the urinary tract.

The prognosis has been considerably improved. The treatment must be surgical.

GASTRO-INTESTINAL TRACT

Geschickter, C F Tumors of the Digestive Tract *Am J Cancer*, 1935, 25 130

The digestive tract is continuous with the mucous membrane of ectodermal origin in the mouth and at the anus. The pharynx is lined by epidermal tissue and tumors of this portion of the tract are more conveniently considered with other epidermal tumors of the oral and intra-oral membranes. Neoplasms of the remainder of the digestive tract are considered together. Except in the esophagus, the most frequent tumors in this region are the adenoma and the adenocarcinoma. These growths arise from the glandular portion of the mucosa throughout the digestive tract. The incidence of benign adenomas approximates one-sixteenth that of cancer. Adenocarcinoma and its mucoid, fibrous, and anaplastic variants are more common in the stomach, large bowel, and rectum, and relatively rare in the esophagus and intestine. Squamous-celled cancer is the predominating form in the esophagus. This may invade the cardiac end of the stomach. It occurs also in the rectum and at the anal margin. Sarcoma is rare in the alimentary canal. The most common types are lymphosarcoma, myosarcoma, and sarcoma of the nerve sheaths. These growths constituted about 4 per cent of the neoplasms reviewed.

The 662 tumors discussed by the author were classified as follows:

Adenocarcinomas, 538 Esophagus, 4, stomach, 212, small intestine, 11, appendix, 1, colon, 100, rectum, 210

Muco-adenocarcinomas, 123 Esophagus, 2, stomach, 21, small intestine, 2, colon, 55, rectum, 42, appendix, 1

Fibrocarcinomas (scirrhous), 58 Esophagus, 1, stomach, 15, small intestine, 1, colon, 16, rectum, 25

Anaplastic carcinomas (medullary), 71 Stomach, 65, colon, 5, small intestine, 1

Primary mucoid carcinomas (signet-ring-cell cancers), 32 Stomach, 18, colon, 7, rectum, 7

Squamous-cell carcinomas, 88 Esophagus, 74, colon, 1, rectum, 12, stomach, 1

Lymphosarcomas, 38 Stomach, 4, small intestine, 20, colon, 12, rectum, 2

Other forms of sarcoma, myosarcoma, and nerve-sheath sarcomas, 14 JOHN W. NUZZO, M.D.

Pendergrass, E P, and Andrews, J R Prolapsing Lesions of the Gastric Mucosa *Am J Roentgenol*, 1935, 34 337

Brief reference is made to a previous report in 1926 on cases of prolapsing lesions of the gastric mucosa with surgical confirmation. This article is based on sixteen cases observed since then in which such a lesion was first recognized at operation or was diagnosed by roentgen examination and the diagnosis confirmed at operation. The clinical, roentgen, and operative findings in these cases are reported in detail and discussed.

Attention is called to the lack of a characteristic clinical syndrome. For pre-operative recognition of the condition roentgen examination is of prime importance. The findings of roentgenoscopy are far more reliable than those of roentgenography.

The essential diagnostic feature from the roentgen standpoint is a large negative filling defect of the pyloric end of the stomach which is movable and can be pushed into the duodenum where it produces a deformity of the cap. Gastric stasis and fixed pyloric or duodenal defects may or may not be present. The peristalsis and motility vary considerably in different cases and their variations are not dependable evidence of the presence of prolapsing lesions of the mucosa. No reliable criteria for differentiating between prolapsing gastric polypi and prolapsing hypertrophic gastric mucosa have been established as yet.

The errors in the diagnosis of prolapsing lesions of the gastric mucosa are due, not to mistaking these lesions for others but to mistaking other lesions for these lesions. In the differential diagnosis, congenital mesenteric membranes, redundant normal membranes, inflammatory adhesions, a hypertrophic pyloric muscle, and duodenal and gastric ulcers, gastric carcinoma, and retained food particles must be ruled out.

In conclusion it is stated that when a suggestive appearance is observed in the roentgenogram in the presence of negative roentgenoscopic findings the diagnosis of a prolapsing lesion of the gastric mucosa should be held to be equivocal and the patient re-examined with special attention to the findings of roentgenoscopy. ADOLPH HARTUNG, M.D.

Scott W J M: *The Possibility of Malignancy As It Affects the Treatment of Chronic Gastric Ulcer*. *Ann Surg* 1935 101 356

The author reports in detail ten cases of chronic gastric ulcer and presents roentgenograms to demonstrate the impossibility of differentiating between benign and malignant gastric lesions without histological study. The conclusion is reached that many of the lesions which clinically appear to be simple ulcers are eventually proved to be malignant. Balfour's report on 200 gastric lesions treated only by gastro-enterotomy without excision, in which after five years or more there were only six incidents of death from gastric carcinoma, is explained by the method of choice which automatically included those lesions chiefly on the posterior wall of the stomach, the upper half of the lesser curvature, and the cardiac end of the stomach, where the incidence of malignant lesions is particularly low. Lesions of the pyloric antrum and the greater curvature where there is a greater likelihood of malignancy among questionable lesions, were excluded. Therefore by this process of selection an incidence of 6 per cent of carcinoma is not surprising.

Radical resection is advised for all lesions which do not respond by improvement to a clinical test for malignancy in the chronic gastric ulcer. The criteria of improvement are within the first week diminution of symptomatology within the second week almost complete disappearance of symptoms plus absence of occult blood in the stools. The third week the size of the ulcer niche should decrease at least by one-third and thereafter continuous decrease of the ulcer to disappearance, as determined by X-ray examination. Should at any time during the therapy there be a recurrence of symptoms or an increase in the size of the ulcer niche, surgical therapy becomes indicated. *SAMUEL J. FORDSON, M D*

Dragstedt, L. R.: *Some Physiological Principles Involved in the Surgical Treatment of Gastric and Duodenal Ulcer*. *A. J. Surg* 1935 101 505

After reviewing the previously reported studies of Vaughn and Dragstedt on the resistance to digestion of various normal organs sutured into large openings in the stomachs of dogs, the author reports new experiments which demonstrate that undiluted pure gastric juice will digest these organs.

In two dogs a large Pavlov accessory pouch was made of approximately two-thirds of the entire fundus. The pouch was connected to the exterior by means of a tightly fitting metal cannula. Gastric juice could be retained or permitted to escape at will. The spleen was sutured carefully into a large window made in the accessory stomach. During the first week or two the gastric juice secreted in the pouch was promptly drained. During this time it remained fairly clear and the condition of the animals was excellent. Retention of the gastric juice in the pouch for daily periods of three or four hours was made possible by screwing the cap of the cannula closed. The accumulation of sufficient

secretion of the pouch to permit mechanical damage to the implant was carefully avoided. After a few days gastric juice draining from the pouch became blood tinged and severe hemorrhage occurred. The dogs became markedly weak and cachectic. The specimens obtained showed extensive digestion of the spleen by the pure gastric juice in striking contrast to the almost complete absence of such digestion by the normal gastric contents.

In another series of experiments an isolated gastric pouch was drained into the jejunum and ileum. Of six animals in which the (pure) gastric juice passed into the ileum an ulcer developed in the adjacent area in all, and of thirteen animals in which it passed into the jejunum such an ulcer developed in 11 (85 per cent). The ulcers always developed in the intestinal wall adjacent to the line of anastomosis with the gastric pouch. They never occurred in the gastric mucosa.

In a third series of animals the entire stomach was isolated with preservation of its vagus innervation. Observation of these animals demonstrated that if the pure gastric juice was permitted to accumulate in the isolated stomach or if drainage to the exterior was inadequate ulcers developed in the gastric mucosa.

These experimental observations led to the conclusion that pure gastric juice can digest away living tissue including the mucosa of the digestive tube.

An attempt was made next to determine what component of gastric secretion was responsible for the digestive effect. This study was limited to the pepsin and free hydrochloric acid. Filled legs of frogs immersed in pure gastric juice were markedly digested in a few hours. Pancreatic juice had practically no digestive effect. When the free acidity was reduced to 30 clinical units or less there was little or no digestive activity, whereas juice with a concentration of 50 units of free acid had a very marked effect almost irrespective of the pepsin concentration. Under normal conditions of motility the gastric content passes into the duodenum before its capacity to bind or neutralize the free hydrochloric acid is entirely overcome, but when there is an abnormal retention the continuing secretion of gastric juice gradually raises the acidity of the gastric content until it approaches that of the pure secretion.

Spasm of the pylorus would prevent reflux of bile and pancreatic juice which also occurs normally and serves to prevent the development of high concentrations of acid in the gastric content. Should this spasm be associated with a stenosing duodenal ulcer there would be limitation of regurgitation as well as exaggeration of retention. Then there would be set up a vicious circle the increasing acidity of the gastric content increasing the pylorospasm.

According to these observations, surgical therapy should be directed toward overcoming retention when it is responsible for increased acidity of the gastric contents. A large stoma to facilitate emptying of the stomach seems indicated. Gastroduo-

denostomy or pyloroplasty is preferable to gastrojejunostomy because of the greater resistance of the duodenum to digestion. In addition, the so-called ulcer gastritis is of the same acid origin as ulcer. Partial gastrectomy is not indicated because the development of typical ulcers in the wall of isolated stomachs proves that pure gastric juice can digest the gastric mucosa and makes it unnecessary to postulate a specific loss of resistance as the cause of gastric ulcers which should also respond to drainage and dilution of pure gastric juice.

SAMUEL J. FOGELSON, M.D.

Gatch, W. D., and Culbertson, C. G. Circulatory Disturbances Caused by Intestinal Obstruction. *Ann Surg*, 1935, 102: 619.

In clinical intestinal obstruction, injury to the bowel is due chiefly to distention and venous obstruction. Distention causes a decrease in the blood flow through the bowel wall which is in direct proportion to the elevation of the pressure. When it reaches the level of the diastolic blood pressure it almost stops the flow of blood. At this level it stops all absorption by way of the mesentery. Transperitoneal absorption then occurs. Distention sufficient to arrest the circulation of the bowel will devitalize the intestinal mucosa in from five to fifteen hours. The devitalization is evidenced by the loss of selective absorption by the mucosa. It then permits the passage of toxic substances present in the normal obstructed bowel. The absorption of materials normally absorbable by the bowel, except water and probably inert gases, proceeds at a relatively uniform rate in the presence of intra-intestinal pressures between zero and the diastolic blood pressure. Final conclusions regarding the effect of distention on the absorption of water and inert gases have not been made.

Venous obstruction subjects the capillaries of the bowel to the full force of the systolic blood pressure. This accounts for the rapid destruction of the bowel wall. The circulation of the obstructed bowel is not greatly influenced by the increased intra-abdominal pressure which accompanies intestinal obstruction. The blood flow through distended loops of intestine must be lessened by any weakness of the systemic circulation.

Toxic material present in the lumen or wall of the obstructed bowel may reach the systemic circulation by way of (1) the mesenteric vessels or (2) the peritoneal cavity. Before the passage of any toxins which the authors can imagine to be present by either route or under any conditions can occur, injury to the mucosa must exist. Injury observed under clinical conditions to the mucosa of the obstructed bowel is due practically to two causes only: (1) distention, and (2) venous congestion. Any passage of toxins from a bowel with devitalized mucosa must be transperitoneal as long as its circulation is stopped by pressure or obstruction, by way of the mesentery if its circulation is present. The body is protected in a fairly adequate manner

from absorption of toxins by way of the peritoneum. The sudden relief of obstruction in the presence of devitalized mucosa may permit the rapid absorption of toxic substances by way of the mesentery.

In the clinical management of patients suffering from advanced obstruction, it seems desirable to deflate the bowel gradually before operative relief of the obstruction is undertaken. Otherwise the barriers against absorption of the toxins by way of the peritoneum and against their rapid absorption by way of the mesentery may be broken down.

CHARLES BARON, M.D.

Balfour, D. C. Factors Governing the Results of Surgical Treatment of Duodenal Ulcer. *Ann Surg*, 1935, 102: 581.

Balfour believes that the continued study of the circumstances under which satisfactory results follow operation should provide clues which will aid toward a better understanding of the fact that the efficiency of surgical treatment rests primarily on the proper selection of cases for operation and selection of the operation. The more accurate is knowledge in these respects, the more accurate will be the prognosis as to what results may be expected from surgical management.

If the data obtained from this study are correlated, it is apparent that, in general, the best results, insofar as the relief of symptoms is concerned, are obtained for patients (particularly women) of middle age with impaired motor function, low acidity, and a long-standing history of distress. Less satisfactory results are obtained, regardless of operation, the farther conditions are in opposition to the factors above mentioned, but this particular series of cases gives surprisingly little emphasis to this point. In respect to the value of the different types of operations, this study showed conclusively that if results are computed over a sufficient length of time after operation and surgical management has been well applied according to the circumstances in each case, the conservative operations present so many advantages that they are the operations of choice for chronic duodenal ulcer, both with and without complications. In particular, the value of gastro-enterostomy clearly is apparent, for not only does it usually bring about complete and permanent healing of duodenal ulcer, but in the event of recurrence of ulceration in the stomach or jejunum it is the only operation which permits restoration of normal continuity of the stomach and duodenum, an advantage which it is unnecessary to emphasize.

McKittrick, L. S., and Miller, R. H. Idiopathic Ulcerative Colitis. *Ann Surg*, 1935, 102: 656.

McKittrick and Miller report on a series of 149 cases of chronic idiopathic ulcerative colitis seen during the past twenty years in the wards of the Massachusetts General Hospital. The patients were all studied with particular reference to the value of, and indications for, surgical treatment. Every patient not responding to medical treatment was seen in

consultation with a surgeon. Operation, if advised, was usually an ileostomy with complete external diversion of the fecal stream. In a few cases in which the disease was localized a more distal procedure was carried out.

Variations in symptoms have resulted in occasional uncertainty as to diagnosis, particularly in the more acute cases. Rectal bleeding is an almost constant sign. Described as "streaks of blood," it occurred in 87 per cent of the cases. Massive hemorrhage occurs in about 5 per cent of cases and is often a serious symptom. Diarrhea occurs frequently without blood at the onset and is present in all cases at some stage of the disease. Constipation is not uncommon, especially prior to the onset of acute symptoms. In 1 of the cases reviewed, constipation alternated with diarrhea. The patient finally came to the hospital because of bleeding and failure of the bowels to move for five days. The onset may be sudden or gradual. In some cases a sudden chill and high fever initiate the attack. Recurring attacks of fever, marked prostration, rapid loss of weight and strength, and a tendency toward remissions and relapses are characteristic. Complications are frequent and may be serious. Perianal infections, polymyositis, hemorrhage, and later polyps are commonly sequelae of the disease. Physical examination may reveal tenderness along the course of the colon. Laboratory examinations are important. Proctoscopy represents the most important single method of examination. In all of the cases reviewed its findings were positive. The outstanding characteristic is the diffuseness of the process. The red, granular edematous mucous membrane bleeding easily on slight trauma may be studded with small white dots representing small military abscesses which later break down to form superficial ulcerations. The ulcerations may be seen only with great difficulty or may coalesce to form lesions 1 or 2 cm. in diameter. Next to proctoscopy the most valuable diagnostic aid is X-ray examination with a barium enema.

In the 149 cases reviewed, there were 37 deaths, a mortality of 18 per cent. The chief causes of death were general peritonitis from perforation of the colonic ulcers, widespread sepsis, pneumonia, and abscess formation in the liver.

The authors believe that the only surgical procedure indicated in ulcerative colitis is one which will afford a complete rest to the affected bowel segment by diverting the fecal stream externally proximal to the disease. With few exceptions this means ileostomy. In carefully selected cases surgery has an important place in the management of intractable and serious ulcerative colitis. Ileostomy is the operation of choice. Preceded and followed by blood transfusions, it is frequently a life saving procedure. It was ultimately performed in 40 per cent of the cases reviewed. Approximately 40 per cent of the patients surviving ileostomy will later require removal of the diseased colon. The results after subtotal colectomy are excellent.

JOSE W. ACRON, M.D.

Rankin, F. W.: Colectomy for Adenomatosis and Pseudopolyps. *J. N. Surg.* 1935, 103, 707.

In the author's opinion, total or subtotal colectomy is best performed in the following three stages: (1) ileostomy, (2) colectomy, and (3) either removal of the rectum by a combined perico-abdominal procedure or anastomosis of the ileum to the rectum and closure of the discharging ileostomy at the same time or later. Because of the serious disturbance of fluid balance which is a necessary sequel to it, ileostomy should invariably precede the other technical steps by a matter of weeks or months. Large quantities of fluid are discharged through the ileostomy immediately upon its accomplishment and when the right colon has been sidetracked the fluid balance which results in dehydration and weight loss, although a serious problem until a physiological normal has been restored is not surprising. As tone progresses and the ileostomy assumes some of the functions of the colon, hypertrophy occurs in its musculature, dilatation accompanies this change, and the stools become semisolid or even formed.

In this article Rankin adds five cases of colectomy for diffuse adenomatosis and complicated chronic ulcerative colitis to six previous cases in which the entire rectum and colon were removed by multiple procedures. In four of the five cases the colon was removed down to the rectosigmoid junction. In one case total colectomy was performed. It seems probable that in two cases of chronic ulcerative colitis the rectum will have to be removed later. In one case the re-establishment of the continuity of the gastro-intestinal tract was carried out at the third stage following destruction of the rectal polyp by fulguration. There was one operative death in this series following the second stage colectomy. The remarkable disappearance of diffuse rectal polyps following fulguration is surprising and leads to the opinion that this procedure may prove available in other similar cases. When there is no suspicion of malignancy the omentum should be preserved. The rectal stump must be closed over as accurately as possible, covered with whatever tissues are available and if there is any question of leakage, wrapped in iodoform gauze and a rubber tube to establish a drainage tract in case the suture line fails to hold.

Of the eleven patients, one died eighteen months after the complete operation from recurrence of a carcinoma which had developed on the polyp. Another died two years later after a hysterectomy performed elsewhere. One patient died in the hospital following the second stage operation. The remaining eight patients are alive and well and have returned to their occupations.

F. W. RANKIN, M.D.

Steinfeld H. Advances in the Diagnosis and Treatment of Carcinoma of the Rectum. (Fortschritt in der Diagnostik und Therapie des Mastdarmkrebes). *Wien und München* 1935, 492, 59.

According to collected statistics carcinoma of the rectum causes symptoms for an average period of five

months before the patient consults a physician. It is because of this fact that the prognosis is so poor in cases coming to operation. In addition, a large percentage of rectal carcinomas go unrecognized or are recognized too late by the physician. Of the cases of inoperable carcinoma investigated in Hochenegg's clinic, 22 per cent became inoperable because of diagnostic mistakes. Kuettner reported that of the 1,300 cases observed by him, 68 per cent could be diagnosed without difficulty by the simple procedure of digital examination of the rectum but in 68 per cent, in spite of suggestive signs, this simple procedure had not been carried out. By such figures one is impressed by the necessity for a radical change in examination. This would be simple if the physician would consider examination of the rectum indispensable in all suspected cases. When the finger does not reach far enough (for example, when the tumor is situated high), proctoscopic examination is essential. This method of examination can be carried out much more frequently since proctoscopes are now being sold at relatively low prices. The diagnosis of carcinoma of the sigmoid makes greater demands on the physician. For the lower part of the sigmoid the proctoscope can be employed as usual. The higher parts of the sigmoid come within the field of X-ray examination.

We have not advanced very much further in the finding of new reliable symptoms. Irregularity in the emptying of the bowel (constipation, diarrhea) and the passage of mucus and blood are to be heeded. Tenesmus, the sense of a foreign body in the rectum, and pain in the pelvis no longer belong to the early symptoms.

Since a large percentage of carcinomas of the rectum are seen by the surgeon in late stages of the disease, the inference is that the indications for radical operation must be extended, the type of operation developed, or new methods of operative treatment found. In general the hopes raised for radium or X-ray treatment of carcinoma of the rectum have not been fulfilled so that surgical procedures can be limited to operable carcinomas. Goetze extends greatly the limits for radical operation, emphasizing favorably the viewpoint of a higher primary mortality in exchange for permanent cure. There are many contrary views as to the equality of various radical operations. The demand of Schmieden to take the sphincter muscle has not prevailed. The investigations of Maresch have not confirmed the viewpoint advocated by Westhues and Schmieden. For cases of carcinoma based on generalized polyposis, the best procedure is an abdominosacral operation. However, the author believes that, as a method of choice, this is too radical.

According to Steindl's experience, the sacral procedure, if indicated and technically mastered, gives satisfactory results in which the preservation of the sphincter plays an important rôle. Carcinoma of the rectum in women, which has extended to the pelvic organs, can be radically removed by the sacral method with good exposure of the uterus and tubes.

Aside from this, it is the author's opinion that improvement in the results of operation depend not so much on the removal of larger sections of bowel as on more extensive removal of the pararectal tissues. In this respect the "extended sacral operation" of Goetze is noteworthy. The sacral method also succeeds in mobilizing and separating larger end pieces of bowel. The basic application of sacral methods of operation and the endeavor to preserve the sphincter when possible are efforts in the right direction. In this way, the sacral anus and the retrained sphincter can later be again brought into continuity. For epithelioma of the anus, radium treatment seems sufficient.

It must be borne in mind that recovery depends not only on operation but also on adequate after care and careful pre-operative preparation. Recently the use of electrosurgery has been reported of great advantage. The author has had no extensive experience with it. For inoperable cases he suggests electrocoagulation of the tumor in order to enlarge the constricted lumen. The use of corrosive pastes is advised against because of the severe pain such pastes produce. Steindl states that he has seen no results from dietetic measures instituted to prevent recurrence and that treatment of cases of inoperable carcinoma by the method of Salzborn has little in its favor. In cases of inoperable carcinoma with tenesmus and increased secretion of mucus, colostomy should be proposed. The results of X-ray and radium treatment of inoperable carcinoma are unsatisfactory. Chordotomy and sympathectomy may be used in inoperable cases in which there is otherwise uncontrollable pain. Marked improvement in the treatment of carcinoma of the rectum can be obtained only by education of the public with regard to continuous medical control of health and constant training of the physician with regard to the necessity for thorough and repeated examination of the patient.

(MAXIMILIAN HIRSCH) CLAUDE F. DIXON, M.D.

Tucker, C. C., and Hellwig, C. A. Anal Ducts Comparative and Developmental Histology. *Arch. Surg.*, 1935, 31: 521.

The authors made a study of the anatomy of the anal ducts in man and of the comparative anatomy of these ducts in the dog, cat, guinea pig, rabbit, chicken, and human embryo. Microscopic studies of more than 400 proctologic specimens demonstrated that the crypts of Morgagni are not by themselves responsible for the frequency of anal infection, but that infection originates as a rule in preformed tubules which the authors call "anal ducts." These ducts were found to open into the crypts, affording a ready path for infective organisms from the intestinal lumen into the wall of the anal canal.

The rectal mucosa with its Lieberkuhn crypts does not join directly with the epidermis of the anal canal. A circular zone, varying in height from 0.5 to 1.2 cm, separates the entodermal and the ecto-

dermal portion. Its epithelium is composed of several layers of polygonal cells, while the superficial cells are columnar. It is only from this transitional epithelium of the intermediate zone that the anal ducts originate and extend into the submucous or muscular layers of the anal canal.

So striking is the resemblance between the intermediate zone of the anal canal and the derivatives of the urogenital sinus that a developmental relationship between these structures seems obvious. In the rabbit, dog, and pig the intermediate zone shows complex glandular organs which seem to have a definite, probably sexual, function by producing odoriferous substances. The wall of the cloaca in the chicken is surrounded by a voluminous gland which, during the first year of life, is embedded in dense lymphoid tissue. This gland has been called by zoologists the anal, prostate or Cowper's gland and indicates that the anal, prostate, and para-urethral glands of mammals are homologous to this cloacal gland in the fowl.

In 6 human embryos the rectum in the earliest stage presented at its lower extremity a spindle shaped swelling which extended into the fetal cloaca. The cloaca was closed off from the outside of the cloacal membrane. The division of the cloaca into the urogenital sinus and the rectum takes place in embryos about 15 mm long. When the cloaca becomes divided into dorsal and ventral parts, the dorsal half of the fetal cloaca becomes incorporated with the rectum and forms the intermediate zone of the anal canal. In embryos about 30 mm long there were found distinct anal ducts arising from the upper portion of the intermediate zone. All were distinctly tubular and gave off several branches at various levels. The glandular ducts extended sometimes through the internal sphincter and terminated in the connective tissue between the muscle layers. The epithelium of these ducts was stratified and columnar and in the branches became cuboidal. The development of the anal ducts took place at the same time as did that of the prostate and the para-urethral ducts. The latter originate from the urogenital sinus, a derivative of the anterior portion of the cloaca. The intermediate zone of the anal canal and the urethra are derivatives of the same fetal organ, namely the cloaca, and the anal, prostate, and para-urethral ducts are homologous structures.

MAYNARD E. LACHENBERRY, M.D.

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

Ochsner A., and DeBakey M. Liver Abscess.
I. Amebic Abscess. *Am J Surg* 1935, 50 175

One hundred and two cases of liver abscess admitted to the Charity Hospital and the Touro Infirmary, New Orleans, during a six year period are analyzed. Seventy-one and one-half per cent of the abscesses were amebic and 28 1/2 per cent were pyogenic. The reported incidence of abscess formation in amebic dysentery varies considerably. Of

a collected series of 4,393 fatal cases of amebic infection, abscess of the liver occurred in 37.9 per cent. In tropical countries white inhabitants are more susceptible to amebic abscess of the liver than the natives. In 388 cases of amebic dysentery treated at the Charity Hospital, New Orleans, amebic abscess of the liver occurred in 50 (15.5 per cent). This high incidence is probably explained by the fact that only the more severe cases of amebiasis are admitted to that institution. Of 574 patients admitted to the Charity Hospital with a diagnosis of liver disease in the period from 1928 to 1933, 14.6 per cent had hepatic abscesses and 10.3 per cent had amebic abscesses.

The 73 patients with hepatic abscesses ranged in age from eight to seventy years and averaged forty-four years. Fifty-four and seven tenths per cent were forty years or older whereas only 45.8 per cent were younger than forty. Four patients were older than sixty. Eight were females and 65 males, the ratio of females to males being therefore 1:8. Forty-four were whites and 29 were colored.

Amebic hepatic abscess is the result of the entrance of amebae into the liver from the bowel by way of the portal system. Because of the lytic action of the amebae and interference with the blood supply destruction of the liver tissue occurs with the formation of cavities. The cavities are usually single, but in some cases multiple abscesses are formed. Of 46 cases in which the findings of bacteriological examination of the pus were recorded, only 5 (10.8 per cent) showed secondary infection. In the remaining 41 (89 per cent) the pus was sterile. Of the collected series of cases, the pus was sterile in 83.9 per cent. Active mobile amebae are seldom found in the pus of large abscesses, but are almost invariably present in the wall of the abscess. After drainage of the abscess, amebae can frequently be discovered in the pus because as the result of contraction of the abscess, they are probably squeezed from the wall into the abscess cavity. The right lobe was involved in 91.2 per cent of the reviewed cases, the left lobe in 3.5 per cent, and the median lobe in 3.5 per cent. Both lobes were involved in 1.7 per cent. Of the collected cases, bilateral abscesses were found in 10.5 per cent of those coming to autopsy but in only 3.1 per cent of the others. The lesions were single in 71 per cent and multiple in 28.7 per cent.

The most frequent symptom was fever which was present in 80.7 per cent of the collected cases. Chills occurred in 24.7 per cent of the collected cases but in only 13.6 per cent of the authors' cases. Other symptoms were nausea, vomiting and weakness. A history of diarrhea was given in only 36.8 per cent of 318 collected cases and in only 50.6 per cent of the authors' cases. Pain and tenderness were present in 79.4 per cent of the authors' cases. Enlargement of the liver occurred in 65.7 per cent and jaundice in 10.9 per cent. Characteristically in amebic hepatic abscess there is a moderate increase in the number of leucocytes with a disproportionate

increase in the polymorphonuclear leucocytes such as is found in the pyogenic types of infections. The average blood findings in the entire series of cases were leucocytes, 14,000, polymorphonuclear leucocytes, 70 per cent, hemoglobin 64 per cent, and erythrocytes, 3,700,000. Amebæ were present in the stools in only 36.1 per cent of the cases.

Of great diagnostic importance are the roentgenographic findings. In uncomplicated liver abscess roentgen examination discloses a distinct bulging of the diaphragm and pointing upward in the lower lung field which are almost pathognomonic. In cases in which the liver abscess has perforated into the subphrenic space, obliteration of the cardiophrenic angle is seen in the anteroposterior roentgenogram and obliteration of the costophrenic angle in the lateral roentgenogram. The roentgen findings were positive in 87.7 per cent of the authors' cases.

The diagnosis of amebic hepatic abscess is not difficult if the symptoms and signs mentioned are present, and is made definitely by aspiration of the typical "chocolate-sauce" pus from the abscess cavity. Of the authors' series of cases, a correct preoperative diagnosis was made in 68.4 per cent.

The prognosis of amebic hepatic abscess depends upon (1) the number of lesions in the liver, which in turn depends upon the severity of the amebic infection, (2) the general resistance of the patient, (3) the occurrence of secondary infection of the abscess cavity, and (4) the treatment. In cases of amebic abscess of the liver treated by open drainage the prognosis is much less favorable than in cases treated by closed drainage. In the cases of the first group which are reviewed by the authors the mortality was 19.5 per cent whereas in those of the second group it was 4.1 per cent. Of 4,035 cases collected from the literature, the mortality in the group in which open operation was done was 37.2 per cent, and the mortality in the group treated conservatively was 6.9 per cent.

The treatment of amebic abscess of the liver consists of the administration of the specific drug, emetine, and aspiration of the abscess contents in cases in which secondary infection has not occurred. It is imperative that secondary infection be prevented in amebic abscess because if it occurs, extension of the process with the destruction of more liver tissue results almost invariably. The mortality in the authors' group of cases treated conservatively by the administration of emetine and closed drainage by aspiration was 4.1 per cent. Of 46 cases in which open operation was done, the retroperitoneal approach was employed in 9 with a mortality of 11.1 per cent. In 14 in which a right rectus incision was made for drainage of the abscess the mortality was 21.4 per cent, in 16 cases with transpleural drainage it was 25 per cent, and in 7 cases treated by simple incision and drainage of the pointing abscess it was 14.2 per cent. Before the aspiration of the abscess, emetine is given in 1-gr doses daily for two or three days. Aspiration should be made over the bulging area. The needle should be introduced

so that it will not traverse an uninvolved serous cavity. As much as possible of the abscess contents should be aspirated. Following aspiration of the abscess the administration of the emetine is continued until a total of from 6 to 10 gr has been administered. The total amount of emetine administered over any given period of time should not exceed 10 mgm per kilogram of body weight.

The most frequent complication of amebic hepatic abscess is pleuropulmonary involvement. This occurred in 10.8 per cent of the authors' cases. In 9.5 per cent there was lung involvement and in 1.3 per cent pleural involvement. Of 7 patients with a bronchohepatic fistula, 6 were treated conservatively and all of the 6 recovered. One patient was operated upon and died. The total mortality in the cases with a bronchohepatic fistula was 14.2 per cent.

Brendolan, G. The Immediate and Late Effects of the Section of the Sphincter of Oddi (Conseguenze prossime e remote della sezione dello sfintere di Oddi). *Arch. ital. di chir.*, 1935, 40: 529.

Brendolan sectioned the sphincter of Oddi in twelve dogs to study the changes resulting in the sphincter itself after the intervention, to establish its relation to the future function of the biliary passages, and to note its eventual effects on the liver and pancreas.

After briefly reviewing the literature on this subject, he describes and discusses the anatomy and physiology of the sphincter of Oddi in dogs and human beings.

Postmortem examination of the experimental animals disclosed that when the submucous tract of the ampulla was long, enlargement of the ampulla had occurred, whereas when the submucous tract was short, the ampullary outlet appeared to be reduced in caliber. This finding is of considerable practical importance because if it can be shown that in a few human beings the submucous tract is short, the unfavorable results which sometimes follow transduodenal choledochotomy can be readily explained.

The author observed also an infection of the extrahepatic biliary passages in all cases except in one in which the animal was kept alive for a long time. This cholangitis was not severe, but was probably responsible for the prostration and fever which lasted for a few days following the intervention. There was no loss of weight, no icterus, and no other sign of biliary involvement. All of the animals except two overcame the infection.

Macroscopic and microscopic examination did not reveal any marked inflammatory changes. There was a mild peritoneal reaction which was most evident in the area where the duodenal sutures had been applied. The author believes that this infection was caused by the operation.

He concludes that the cholangitis was of enteric origin and caused by the passage of intestinal pathogenic micro-organisms into the unprotected common duct which had been deprived of its sphincter. Some

believe this infection to be of lymphogenic or hematogenic origin, but there seems to be little evidence in favor of this theory.

In two cases in which, following the intervention, the ampulla had become stenosed from the pressure exerted by the duodenal sutures a dilatation of the extrahepatic and intrahepatic biliary passages was found. In the author's opinion the dilatation was the result of the obstruction, but several other theories have been advanced to explain this pathological phenomenon.

RICHARD E. SONNEN

Whipple, A. O., Parsons, W. B., and Mullins, C. R.: The Treatment of Carcinoma of the Ampulla of Vater. *Ann. Surg.* 1935, 103, 763.

The authors review certain factors which have compromised the success of radical removal of carcinoma of the ampulla of Vater and the head of the pancreas. The first of these was the mistaken belief that the flow of pancreatic juice is essential to life which led surgeons to re-establish this flow into the duodenum or jejunum by implanting the resected head of the pancreas or the cut end of the duct into the upper intestine. In the human subject the activation of pancreatic ferments by duodenal contents compromised any type of anastomosis, especially around the posterior aspect of the duodenum devoid of peritoneum. A second factor was the attempt to carry out the excision of these tumors in one stage whatever the method used. The victims of these tumors are as a rule deeply jaundiced, depleted, undernourished, and anemic, and are suffering from a hemorrhagic diathesis and severe liver damage. The majority of them cannot survive such a major operation until the associated symptoms have been relieved. In recent years this factor has been recognized and a preliminary short-circuiting operation to relieve jaundice has been carried out.

The authors report three cases of carcinoma of the ampulla of Vater. The first two patients died as a result of failure of the operative procedure employed. The third patient, who was subjected to an improved technique, was reported well more than six months after the last operation. The technique employed by the author is as follows:

Under spinal anesthesia induced with pentothal a right rectus or an epigastric midline incision is made. A posterior gastroenterostomy is then performed and followed by ligation and section of the common duct below the cystic duct after the patency of the cystic duct has been determined. A long black ligature is left as an indicator on the lower stump of the sectioned common duct. Cholecystectomy is done to the anterior surface of the stomach well away from the pylorus, the anastomotic opening being made at least 1 cm. in diameter in order to prevent subsequent stenosis and cholangitis. Three or four weeks later a second operation is carried out under spinal anesthesia and through a transverse incision made above the umbilicus, through both recti if necessary. Ligation of the pancreaticoduodenal and gastroduodenal arteries is

followed by resection of the descending portion of the duodenum with inversion of the upper and lower ends and a V-shaped excision of the pancreas side of the growth, together with the common duct and use of the silk ligature as a guide to the lower cut end of the duct. The cut end of the duct of Wharton and the duct of Santorini, if present, are ligated and the two cut surfaces sutured with interrupted sutures of fine silk. The bed of the resected duodenum is drained with a cigarette drain. Throughout these steps a silk technique was employed, the finest silk being used for all but the large arteries.

ARTHUR F. SAVA, M.D.

Berry, J. A.: A Case of Hyperinsulinism Relieved by Partial Pancreatectomy. *Br. J. Surg.* 1935, 33, 37.

Hyperinsulinism is associated with a variety of clinical syndromes and there can be very little doubt that when the less severe cases of the malady become generally recognized it will be found a relatively common condition. In cases caused by an adenoma of the pancreas surgical treatment has yielded excellent results, but in cases in which the pancreas appears normal the results of partial pancreatectomy have been unsatisfactory.

In the case reported the most prominent symptoms were vertigo, vomiting, and loss of consciousness. A number of blood-sugar estimations were made on venous blood. After the administration of 50 gm. of glucose the curve was always of a hypoglycemic type.

Removal of 35 gm. of the pancreas was followed by the gradual disappearance of all symptoms.

Cases of hypoglycemia may be divided into (1) those due to functional hyperinsulinism resulting from an increase in the number, size, or activity of the islands of Langerhans; (2) those due to the presence of an adenoma or carcinoma of the pancreas; and (3) those due to pituitary, adrenal, hepatic, or other factors.

Except in cases in which an adenoma is removed, the surgical treatment of spontaneous hypoglycemia is disappointing. In cases of hyperinsulinism which have not responded to surgical treatment it is necessary to consider the possibility that a small adenoma is buried in the head of the pancreas where, on account of its size, it would be difficult or impossible to find.

In most of the cases reported in the literature there was no improvement following operation because the amount of pancreatic tissue removed was too small. In Wornack's case in which about one-half of the gland was removed, and in the case reported by Graham and Hartmann, in which from 80 to 90 per cent was removed, improvement resulted. It is probable that, for satisfactory results, half of the pancreas should be removed. The removal of considerably more than half of the pancreas might render the patient permanently diabetic. In the author's case the diabetic tendency lasted for only a short time. After its disappearance there was

apparently an increased activity of the remaining insulin tissues and the patient's condition seemed to have returned to its former state. Since then the blood-sugar curve has become almost normal.

The following hypotheses are advanced

1 In a moderately severe case of functional hyperinsulinism, adequate resection, probably of more than half of the pancreas, is necessary to alleviate the symptoms

2 In the diagnosis of functional hyperinsulinism increasing doses of glucose are necessary in preparing the blood-sugar curves, and the curves are lower with the large doses

3 In functional hyperinsulinism, starvation causes a rise in the blood sugar

It is suggested that these two tests may be of value in distinguishing functional hyperinsulinism from adenoma and carcinoma of the pancreas

HOWARD A. MCKNIGHT, M.D.

Rossi, C. Little Known Forms of Chronic Pancreatitis (Forme poco note di pancreatite cronica) *Clin. chir.*, 1935, 11: 524

Rossi believes that by functional tests, operation, and biopsy he has demonstrated a characteristic pancreatic lesion accompanying the right abdominal syndrome. The primary infection is in the appendix, the pancreas becoming involved through the lymphatics or by extension. Data concerning the relation of chronic pancreatitis to the appendix are scanty. The described lesion is by far the most frequent form but has escaped recognition because of its very slow and latent course and because it does not correspond to the classical pictures of the disease and is revealed only by functional tests. In fact, the designation "chronic pancreatitis" is not particularly applicable. In a preceding report the author showed that the external secretion of the pancreas and the carbohydrate metabolism are affected in about 50 per cent of cases of the right abdominal syndrome, irrespective of the co-existence of cholecystitis or a gastroduodenal ulcer. Therefore the pancreatic lesion is not a complication of the latter conditions but a result of the peritoneal process.

The lesion consists of a predominantly interlobular and periductal fibrosis with moderate cellular degeneration, marked diminution of the islands, and only slight inflammation. It may possibly progress to a clinically apparent chronic pancreatitis although this has not been proved.

In support of his theory Rossi reports twelve cases. The history and the physical, roentgenological and histological findings were similar in all. The patients suffered from "dyspepsia," chiefly pain in the epigastrium and right iliac fossa. Painful points were demonstrated at these sites, in the gall-bladder region, and at Chauffard's point. Roentgenograms disclosed indirect signs of chronic appendicitis, perityphlitis, and pericolicitis, showed the gall bladder to be normal, and ruled out gastroduodenal ulcer.

Gross functional deficiency of the pancreas was absent. In seven of the twelve cases the lipase in

the serum was increased. The blood sugar during fasting was not increased. The alimentary glycemic curve was normal in seven cases, normal but retarded in four, and diphasic in one.

Operation revealed an old appendicular lesion and velamentous adhesions involving especially the omentum, mesentery, duodenum, gall bladder, and liver. In some cases the head of the pancreas was hard whereas in others its consistency and external appearance were normal. In all cases the operation consisted of appendectomy and the separation of adhesions. All of the patients, except one who succumbed to pneumonia, were cured of their symptoms.

Rossi discusses extensively the controversial points with regard to chronic pancreatitis, stressing the uncertainty as to the pathogenesis, symptomatology, and diagnosis of the condition and the criteria giving rise to the differences of opinion. Chronic pancreatitis is often suspected but rarely proved. Recent studies have made the concept familiar and demonstrated the frequency of the condition, but have not particularly advanced diagnostic or etiological knowledge. One of the most disputed points is the value of the various functional tests. Rossi's studies have demonstrated that glycemia during fasting and measurements of diastase in the serum are valueless. The most significant findings are an increase of atoxyl-resistant lipase in the serum and changes in the cure of alimentary glycemia. The most reliable diagnostic method is palpation of the head of the pancreas during operation, although this is subject to numerous errors and does not reveal the nature of the affection.

The article is accompanied by photomicrographs and an extensive bibliography.

M. E. MORSE, M.D.

Bottin, J. The Causes of Death from Complete Pancreatic Fistula in the Dog (Les causes de la mort à la suite d'une fistule pancréatique complète chez le chien). *Rev. belge d. sc. méd.*, 1935, 7: 394.

Bottin reviews the different methods employed to establish a complete pancreatic fistula in the dog. In his own work he first studied the anatomical arrangement of the pancreatic ducts in the dog. In careful dissections of the pancreas he found no supernumerary duct in 75 per cent of the animals. In 25 per cent there was a small supernumerary duct with its orifice between the orifices of the ducts of Wirsung and Santorini.

When the pancreas and the portion of duodenum near it were removed *in toto*, the duodenum was opened longitudinally, and thorotrast was injected into the chief excretory duct of the pancreas, roentgenograms of the specimens showed that in 80 per cent of the animals the chief pancreatic duct extended from its papilla about $\frac{1}{2}$ cm. into the gland and then bifurcated into two large branches, one of which extended downward through the gland and the other upward. In addition, they disclosed a small duct which usually arose about $\frac{1}{2}$ cm. above the

bifurcation of the main pancreatic duct and extended obliquely upward, outward, and backward, ending in the posterior portion of the papilla of the common bile duct in 60 per cent of the animals and immediately below this papilla in 40 per cent. This was an accessory pancreatic duct. In 10 per cent of the animals it originated exactly at the point of bifurcation of the main pancreatic duct instead of above it. In 20 per cent there was a third very small duct between these two ducts, which originated from the upper branch of the main duct and entered the duodenum approximately midway between the common bile duct and the main pancreatic duct. In some instances thorotrast was injected into the accessory pancreatic duct and from this duct entered the main duct. In these also the roentgenograms showed the anatomical arrangement described. In all cases the communication between the main and the accessory pancreatic duct was clearly demonstrated.

The injection of methylene blue into the main pancreatic duct facilitated the dissection of the various pancreatic ducts and confirmed the roentgenographic findings.

In establishing a complete pancreatic fistula it is essential to drain off the entire pancreatic secretion. Most of the methods designed to accomplish this remove not only the pancreatic juice but also a large portion of the duodenal juice. With the methods of Dastre and of Wittel, which establish a complete pancreatoduodenal fistula, the author found that dogs live only from five to seven days. Such fistulae

result in a marked dilatation of the duodenum and severe and frequent vomiting.

Bottin has devised a method for establishing a complete pancreatic fistula without duodenostomy or the loss of duodenal juice. In the first stage of the operation a cholecystogastrostomy is done with resection of the common duct between two ligatures. After the animal has recovered the duodenum is sectioned longitudinally so as to detach the portion containing the orifice of the common bile duct and the main pancreatic duct. As this portion is detached and exteriorized, the duodenum is closed, its lumen being left somewhat narrowed, but still open, and the duodenal wall is carefully sutured to the side.

When this technique was employed the life of the animal was prolonged for from thirty-three to forty-one days. In the first days after the establishment of the fistula, the animal took food and appeared fairly normal. Later, vomiting became severe and the animal's condition grew rapidly worse. This change was due to the loss of pancreatic secretion and to pathological changes in the pancreas as there is no interference with the other digestive secretions.

Analyses of the blood of animals with a pancreatic fistula of this type showed that after vomiting becomes severe there are very definite chemical changes. The latter include a marked loss of water, a moderate acidosis, a reduction of the sodium, potassium, calcium, and chlorine, an increase in the urea and non-proteins nitrogen and a decrease in the sugar.

ALICE M. MERRIS

GYNECOLOGY

UTERUS

Phaneuf, L. E. The Place of Colpectomy in the Treatment of Uterine and Vaginal Prolapse
Am J Obst & Gynec, 1915, 30 544

In old women, colpectomy, subtotal (LeFort) or total (Dujarier and Larget), gives excellent results without undue operative risk.

Inversion of the uterus following supracervical or total hysterectomy may be easily cured by colpectomy. When general anesthesia is contra-indicated colpectomy may be performed under local infiltration or spinal anesthesia. Proper repair of the pelvic floor increases the efficiency of the operation.

The author reports the end-results of colpectomy in twenty-five cases. There were two recurrences.

EDWARD F. SMITH, CORNELL, M.D.

ADNEXAL AND PERIUTERINE CONDITIONS

Puhr, L. A Contribution on the Pathogenesis of the Krukenberg Tumor (Beitrag zur Pathogenese des Krukenberg Tumors). *Monatsschr f Geburtshr u Gynak*, 1935, 99 220

The conclusions and hypotheses advanced by Puhr are based on a single case observed by him. The patient was a woman thirty-four years old who, several months previously, had begun to suffer from lumbago and later developed pain in the back, legs, and chest. In the course of one month she lost 20 kgm in weight. Enlarged lymph glands were found above the left clavicle and in the neck, the axillae, and the inguinal regions. The sternum, the pelvis, and the long bones of the extremities were very sensitive to percussion. The findings of the gynecological and neurological examinations were negative. Roentgen examination disclosed a dense and broadened hilus shadow, an intensive confluent shadowing consisting of a coarsely grained framework or stroma with disseminated foci. A diagnosis of general carcinomatosis was made. The patient died three weeks after her admission to the hospital.

At autopsy the lung was found diffusely infiltrated with nodules the size of millet seeds. Beneath the mucosa of the bronchi, even to the smallest ramifications, there were numerous small, flat, white foci over which the mucosa was thickened. On the mucosa of the stomach there were numerous flat lentil-sized white foci with superficial central degeneration. At the site of the left suprarenal gland there was a grayish tumor tissue. The liver was filled with numerous pale round tumors ranging in size from that of a hazelnut to that of an apple, some of which were sharply demarcated. The spleen was enlarged to twice the normal size and much hardened. The

lymph glands, especially in the region of the abdominal aorta and the mesentery, were enlarged to the size of a pea or hazelnut and infiltrated with grayish-white tumor tissue. The left ovary was enlarged to the size of a walnut and its cut surface showed numerous nodules the size of millet seeds or larger. The right ovary was the size of a pigeon egg and showed the same tumor nodules, which, in the interior, were firmly bound to a dense connective tissue. The bone marrow of the long bones was about half replaced by a red marrow and partly by grayish-white soft tumorous masses. The mucosa of the gall bladder presented similar superficial tumorous foci.

Microscopic examination showed the tumor tissue to consist of a loose stroma with embedded specific tumor cells which were polymorphous. Some of the cells were small and stained deeply whereas others were filled with a light mucus-like mass which crowded the nucleus to one side so that seal-ring forms appeared. Besides these there were cells with finely granular protoplasm and giant cells. Some of the cells were vacuolated and had burst and evacuated their contents. Transitional cells proved that the small deeply stained cells with round nuclei were later transformed into clear, pale, seal-ring cells as the finely granular particles appearing in the protoplasm gradually coalesced, cleared, and became vacuoles. This tumor tissue in the lung formed solid foci which consisted either entirely of seal-ring cells or were built up into glandular canal-like structures. Blood and lymph vessels were filled with the seal-ring cells.

In the gastric mucous membrane which was partly replaced by tumor tissue there were predominantly small dark cells, whereas the liver showed almost exclusively glandular canal-like structures. The tumor cells frequently surrounded large canal-like spaces and formed syncytial masses. Therefore in many areas it was difficult to decide whether large cell vacuoles or glandular lumina were present. On the inner edge of the lumina there was frequently a ciliated border. The lumina contained broken down cells, granules, or detritus.

The ovaries contained large tumor masses consisting of syncytium-like tumor cells hanging together, the majority of which were hyperchromatic and showed mitotic figures. In the large vacuoles of the seal-ring cells there were round spheres stained with eosin. The cellular stroma and the tumor tissue could not be easily differentiated. At numerous sites the tumor tissue had proliferated into the corpora atretica. Only very small portions of the ovary remained free from invasion by the tumor tissue. The condition was therefore a tumorous degeneration of the mucous membranes affecting

chiefly the upper layers, spreading out superficially and leaving the deeper layers unaffected. On the other hand, the tumor tissue infiltrated the parenchymatous organs.

On the basis of the macroscopic and microscopic findings, the author classifies the condition with the Krukenberg tumors even though the findings were atypical in many respects. Determination of the primary focus was impossible as several organs came into consideration as the site of the primary growth. In general, the Krukenberg tumor is considered a carcinoma. However numerous descriptions call attention to the occurrence of a diffuse form of proliferation suggesting sarcoma. Because of this fact several investigators call the Krukenberg tumor a mucocellular fibrosarcoma or a carcinosarcoma.

In the case reported it appeared especially significant that the tumor tissue never originated from the surface epithelium, but was only loosely attached to it. Schlägenhauser stated that Krukenberg tumors are easily confused with endotheliomas, and Marchand has considered the possibility that stroma endothelium can take on the structure of epithelium. So far it has been impossible to demonstrate that endothelium takes part in the development of Krukenberg tumors. There are, however, certain parallels between the Krukenberg and the Grawitz tumor especially as regards the content of foreign substances in the tumor cells. In an earlier investigation Fuhr classified the Grawitz tumor in a group of neoplasms characterized by the absorption and storage of foreign substances which he calls "reticulo-endotheliomas." In common with this group the Krukenberg tumor has a similarity to carcinoma and sarcoma and a tendency toward anaplasia which is characterized by syncytial formations and multiple nucleated giant cells. Within the syncytial cells are large vacuoles and the foreign substances. The ciliated border at the edges of the lumina, which is not present in ordinary cancer of the mucous membrane, and the great tendency of the giant cells to change also indicate an endothelial origin. In the Krukenberg tumor as in the Grawitz tumor, the cells have a definite affinity for hollow spaces lined with endothelium such as the lymph spaces, lymph vessels, and blood vessels, and a tendency to penetrate into these vessels.

(Schlitz) Leo A. Jurewicz, M.D.

MISCELLANEOUS

Teneff, E. Treatment of the Disturbances of the Surgical Menopause by Blood Transfusions. (Trattamento dei disturbi della menopausa chirurgica con trasfusioni di sangue.) *Ginecologia*, 935, 85.

The treatment of ovarian insufficiency by transfusion is more rational and physiological than the use of urine or commercial ovarian preparations. Since 1923 Teneff has treated twelve patients suffering from serious disturbances of the surgical menopause with transfusions of from 200 to 300 c.c.m. of blood

from women during pregnancy, the premenstrual, menstrual, or intermenstrual periods, and from male donors. The patients ranged in age from twenty-eight to forty-three years and had been subjected to bilateral oophorectomy from six months to four years previously. The women are divided into the following groups:

1. Three women given transfusions from donors in the fifth to the eighth month of pregnancy. The symptoms disappeared for about three months, and after their gradual re-appearance were again relieved for the same length of time by a second transfusion.

2. Three women given transfusions from donors in the premenstrual or menstrual period. The results were the same as in the first group.

3. Four women given transfusions at intervals of from one to two months from women in the later menstrual period. These patients have been kept comfortable for from one to two years.

4. Two women each of whom were given two transfusions from young men at intervals of one month. The improvement lasted about two months after the second treatment.

The author concludes that the blood of donors during pregnancy and the premenstrual, menstrual, and intermenstrual periods has about the same efficacy causing disappearance of the symptoms for two or three months. Its most striking effect is on the vasomotor phenomena. The blood of male donors attenuates but does not abolish the disturbances. The action of the transfusions is attributed not only to the introduction of large quantities of ovarian hormones, but especially to the hormones of other endocrines which, by their presence and independently of their quantity correct the desequilibrium due to castration at first temporarily and finally completely. As is demonstrated by the results of the use of male donors, the female sex hormones are not necessary if hormonal equilibrium is re-established by the other hormones transfused.

The article is followed by a bibliography.

M. E. Houser, M.D.

Hamblen, E. C., Baker, R. D. and Martin, D. E.: Blastomycosis of the Female Reproductive Tract. *Am. J. Obst. & Gynec.* 935 30 343.

The authors report a case of infection of the fallopian tubes and uterus by blastomycosis dermatitidis in a patient with arrested pulmonary blastomycosis (American type, Gilchrist's disease). The uterine involvement was diagnosed from a section of endometrial curettings and cultures of the organisms.

Mycological and anatomical studies of the removed tissues were made. The tissue reaction in the affected organs was remarkably like that occurring in tuberculosis, but was differentiated from the latter by the presence of the double-contoured blastomycetes.

Removal of the uterus was necessary to prevent further excessive blood loss, and extirpation of the tubo-ovarian masses was done to remove the large

blastomycotic focus The uncomplicated post-operative course seemed to have justified surgery in this case
EDWARD LYMAN CORNELL, M D

Cabanié, G Cervico-Urèthral Fistulas from Ischémia Fistulas of the Neck of the Bladder and Urethra in the Female (Fistules cervico-urétrales par ischémie À propos des fistules du col vésical et de l'urètre chez la femme) *J d'urolog méd et chir*, 1935, 40 148

Practicing surgery among the Arabs of Morocco one encounters a relatively large number of cervico-urethral fistulas These fistulas differ somewhat from those which are described in the standard texts Because of the accessory lesions, the author believes that the fistulas he has observed constitute a distinct entity

The cause is always prolonged labor The trauma of obstetrical maneuvers plays no part because European physicians are either not called or are called late and the patient may remain in labor as long as a week The cause of the dystocia is ordinary contraction of the pelvic outlet

The mode of production of the fistula is obvious from the necrotic tissue which is eliminated from the vagina after delivery Actual gangrene is produced by the pressure of the fetal head Infection often complicates the condition The terminal effect is a pan-perivaginal sclerosis with urinary fistula In detail, the lesions may be described as follows

In the vagina there are complex adhesions and bands These are located chiefly anteriorly at the level of the symphysis, but a marked fibrosis may extend entirely around the vagina The cul-de-sacs may or may not be involved The vulva is ordinarily intact, being free even from tears The vaginal mucosa loses its mobility and often bleeds at the slightest contact Because of the rigidity of the walls, the vagina may form an actual instead of a virtual cavity

The urinary bladder shows a loss of substance from the posterior wall of the neck and the adjacent urethra The bladder wall is thin rather than sclerosed as is the vagina The sphincters are partially or completely destroyed The normal plane of cleavage between the urinary and genital organs is obliterated In injury of a second degree the entire bladder neck is destroyed and the bladder communicates largely with the vagina, only about 1.5 cm of the distal end of the urethra remaining

Adhesions anteriorly with the symphysis are constant Accessory lesions such as rectovaginal fistula, stenosis of the uterine cervix, and condylomas, are common

In cases of high vesicovaginal fistula the operative prognosis is uniformly favorable When the urethra participates in the fistula, cure is obtained with difficulty In addition to the operative problem one is confronted by the lack of cooperation on the part of the patient who is seldom willing to support the prolonged pre-operative treatment necessary to cure the urinary infection

In the treatment of high vesicovaginal fistulas the author employs the suprapubic approach exclusively In cases of urethrovaginal fistula only the vaginal route is feasible because of the adhesions between the neck of the bladder and the symphysis To obtain sufficient exposure a deep posterolateral debridement of the vagina and vulva is essential The repair is effected by "dédoublement," the vaginal wall and bladder being dissected free from one another This is the most important step in the procedure It is also the most difficult as it is done in sclerotic or friable tissue It must be carried well into normal tissues, much farther than is generally stated The neck of the bladder must be freed from the symphysis The fistula is closed in two layers by interrupted catgut sutures If possible, the first layer should be non-perforating A few supporting sutures are employed if there is sufficient slack in the bladder wall The vagina is closed by a few sutures which are widely separated to allow drainage Silver wire has been found best The bladder is drained suprapubically No pack is placed in the vagina

When the injury is of the second degree and the urethra is separated from the bladder the continuity of the bladder neck must be re-established As a rule a bridge of mucosa is found anteriorly and at first sight a transverse suture seems the most simple However, the results of transverse suture are poor, incontinence being the rule A vertical suture is best, although the resulting urethra may be extremely narrow

The pathological anatomy of the fistulas described is shown by illustrations, and twenty-five cases are reported
ALBERT F DE GROAT, M D

Auer, E S Cancer of the Female Urethra *Am J Obst & Gynec*, 1935, 30 318

Auer reports nine early cases of cancer of the female urethra Two of the patients refused treatment Six had only local treatment and one had local treatment plus a Basset operation Two patients treated more than five years ago lived more than five years A third died of metastases four years after local excision The case of this patient emphasizes the necessity for gland removal in the earliest cases Of the four patients treated most recently, one had a cautery excision more than three years ago, two had a cautery excision followed by less than 900 mgm-hr of heavily screened radium irradiation about five years and one year ago, respectively, and one had local radium irradiation followed by a Basset operation All of these women are living and apparently free from cancer at the present time

Five advanced cases were treated One patient, who was treated by local radium irradiation, has remained cured for more than two years The four others were subjected to a Basset operation in addition to local destruction of the tumor with the cautery or radium One has remained well for more than two years, one for more than five years, and one for more than twelve years One died nine years after

the treatment from cancer of the breast which was considered a new malignancy rather than a metastatic growth.

The remaining eight patients were considered hopeless when seen. Seven were treated only by palliative irradiation, but one was subjected to a Basset operation in addition to local irradiation. The latter patient lived one year after the treatment whereas none of the others survived six months. From the results in this series of cases the author draws the following conclusions:

1. Except in very far-advanced cases that are considered hopeless when first seen, the prognosis is good.

2. The early case of urethral cancer in the female can be successfully treated by local excision, local irradiation, or radical surgery or a combination of either of the first two with the third.

3. Advanced cases that are not yet hopeless are best treated by local irradiation and the Basset operation since practically all such cases show glandular metastases.

FORWARD LYMAN CORWELL, M.D.

Bland, P. B., Frost, A. and Goldstein, L.: The Clinical Investigation of Functional Sterility in the Female. *J. Am. U. Int.* 935 105 237.

The interpretation of sterility in cases in which a complete physical examination reveals no anatomical abnormalities in either the husband or the wife is a complex problem requiring for satisfactory solution an understanding especially of the interrelationship of the glands of internal secretion. Of primary importance is a post coital examination which will reveal the extent of the responsibility of the male and the effect of abnormal or hostile cervical secretion on the spermatozoa. In 50 per cent of the cases of functional sterility in the authors' clinic the husband and wife are being treated simultaneously. Determination of the patency of the tubes by the insufflation of gas and visualization of the tubes by the intra uterine injection of an opaque oil are also important.

In dealing with sterility of assumedly endocrine origin it is of paramount importance to determine, if possible, which gland is primarily responsible. Functional sterility may be due chiefly to primary pituitary ovarian or thyroid dysfunction. Much less frequently is it the result of adrenal disease. By far the most common form of endocrine disturbance in the authors' cases is primary deficiency of the anterior lobe of the pituitary gland. The authors found that the anterior lobe of the pituitary gland produces a hormone that accelerates the specific dynamic action of protein. This explains the low values in pituitary hypofunction and the high values in pituitary adenoma with hyperfunction. Hormone studies in cases of deficiency of the anterior lobe of the pituitary gland show that the gonadotropic hormone is not demonstrable in the blood as con-

trasted to its occurrence in about 50 per cent of patients with primary hypogonadism. The level of estrogenic substance in the blood is below normal.

Primary ovarian failure is due to inherent deficiency of the internal secretory portion of the ovary, independent of the secondary effects of the diminution of function of other glands, notably the pituitary and thyroid. Hypoplasia of the genital organs and irregular menstruation or amenorrhea are constant observations. Hormone studies reveal a uniformly low estrogenic level in the blood before menstruation. The opportunity for fertilization is diminished in direct proportion to the diminution of the number of menstruations annually.

In thyroid dysfunction in the form of either hypothyroidism or hyperthyroidism there is no palpable evidence of genital atrophy, although not infrequently this is the cause of sterility. The diagnosis is relatively easy if basal metabolism studies are made routinely in the investigation of sterility.

From a laboratory standpoint the determination of ovarian (estrogenic) and pituitary (gonadotropic) hormones in the urine has been extremely valuable in the diagnosis and treatment of the underlying condition as well as of allied menstrual disorders. In the light of modern knowledge studies of the endometrium must also be carried out in the investigation of functional sterility. Patients with endocrine sterility may be divided into 2 groups, depending on the presence or absence of regular menstrual periods. Specimens of endometrium obtained with a small curette or pipette are studied and interpreted in the light of our knowledge of what the endometrium should look like premenstrually and at other phases of the menstrual cycle. This is particularly valuable in the cases of patients who are sterile and still menstruate regularly. Of 50 such women who were subjected to a premenstrual curettage only 23 had a normal premenstrual endometrium. In the remaining 27 there was found a hyperplastic, interval, or atrophic endometrium. Of 100 irregularly menstruating women, over two-thirds presented definite evidences of pituitary hypofunction.

With reference to treatment the authors state that prophylaxis in adolescence, regulation of the diet, and attention to the optimal time of conception merit careful consideration before any other step is instituted. Low dosage irradiation of the pituitary gland and ovaries is of value in functional sterility chiefly because of its salutary effect, first on these structures, and secondly on the menstrual process. Of 150 sterile women treated by the authors, 55 (33 per cent) subsequently became pregnant. However, only 4 went to term. Eleven aborted before the sixth month of gestation. While 97 did not become pregnant, many of them showed definite clinical improvement.

H. H. W. JENK, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Day, H F Torsion of the Pregnant Uterus
England J Med, 1935, 213 605

Torsion of the pregnant uterus has been reported in journals dealing with veterinary obstetrics for many years and is not a rare complication of the labor of the cow. In the human female it is much less frequent. The author believes that the uterus does not become twisted unless it is abnormal. The torsion may cause no symptoms or slight or very acute symptoms, depending upon the rapidity with which it occurs. The most common causes of torsion of a pregnant uterus are (1) a fibroid or fibroids, (2) an ovarian tumor, (3) the gradual contraction of a chronic inflammatory process on either side of the uterus, and (4) postoperative scar contraction. In practically all of the cases reviewed by the author the torsion was toward the right. Some obstetricians believe that twisting from left to right is more common than twisting from right to left because the descending colon fills the space on the left side fairly well. It is possible that in the presence of a predisposing cause the rotation may be started by a sudden movement.

In practically none of the cases reported in the literature was the diagnosis made before operation or death. As there is no pathognomonic symptom, the surgeon must bear the condition in mind when he is called upon to treat a pregnant woman suffering from an acute abdominal crisis of obscure nature. The author believes that manipulation in an attempt to reduce the torsion is usually unsuccessful and therefore unwarranted, and that operation should be performed as soon as possible. The procedure indicated at operation depends upon what is found. If it is possible to perform a myomectomy and then reduce the torsion, as in one of the author's cases, that procedure should be carried out. In some cases hysterotomy, or, if the uterus does not seem viable, hysterectomy, may be necessary.

The author reports two cases

J THORNWELL WITHERSPOON, M D

Wickramasuriya, G A W Some Observations on Malaria Occurring in Association with Pregnancy, with Special Reference to the Transplacental Passage of Parasites from the Maternal to the Fetal Circulation *J Obst & Gynec Brit Emp*, 1935, 42 816

The factors which influence transplacental fetal infection are the type of plasmodium (malignant tertian parasite), infection and disease of the placenta, and the efficacy of the treatment adopted. Six fetal deaths due to transplacental infection are reported

Malaria has a marked influence on pregnancy, labor, and the puerperium. It is a powerful oxytocic and causes spontaneous interruption of pregnancy before term. It produces intra-uterine death of the fetus by one or more of three ways: (1) massive infection of the placenta with parasites, (2) a persistently high temperature, and (3) direct invasion of the fetus by parasites. Pregnant women with malaria are prone to develop manifestations of toxemia such as albuminuria, anasarca, and hypertension. An attack of malaria occurring in the second half of pregnancy in a predisposed toxemic subject may precipitate a true eclampsia, and an attack of cerebral malaria may closely simulate clamping or uremia. The onset of coma in cerebral malaria has an inhibitory effect on uterine contractions and may therefore prolong labor. Malarial pnelitis is complications of the puerperium.

On the other hand, pregnancy aggravates malaria to a marked extent, and pregnant women are more liable to develop cerebral malaria than non pregnant women. The strain of labor may not only activate a latent malaria but may intensify the effects of an existing attack. Fatal collapse often follows. The more marked the anemia and the higher the temperature at the time of delivery, the greater the danger. Quinine is still indispensable in the treatment of malaria in gravid as well as non gravid women. Quinoplasmoquinine and plasmoquinine are necessary adjuncts in the treatment. Quinine causes rapid disappearance of the non sexual forms of the parasites while plasmoquinine acts more powerfully on the sexual forms.

Pregnancy is not a contra indication to the use of quinine. Clinical experience does not suggest that quinine administered in therapeutic doses possesses oxytocic powers. Far from being an oxytocic, quinine administered in effective therapeutic doses prevents premature interruption of pregnancy and intra-uterine fetal death by rapidly controlling the malarial infection and the high temperature.

Atebrin is regarded by many as an alternative to quinine in the treatment of malaria during pregnancy. While it should be regarded as a useful addition to our therapeutic armamentarium, it must be said to occupy only a subordinate place to quinine in the treatment of the disease during pregnancy as it does not control the malarial infection and the high temperature so rapidly. Relapses occur after its use, as after the use of quinine, and whether it is as efficacious and as safe for general use as quinine is yet to be seen. Atebrin would appear to be contra-indicated in the cases of women with toxemic pregnancy, pre-existing nephritis, and advanced hookworm disease.

J THORNWELL WITHERSPOON, M D

LABOR AND ITS COMPLICATIONS

Keller, R., and Bohler, E.: Results and Indications of 180 Cesarean Sections (Résultats et indications de cent quatre-vingt sections césariennes). *Gynecologia*, 1935, 34, 4.

This article reports a study of 180 cases in which cesarean section was performed by the authors during the years from 1920 to 1931. In that period the incidence of cesarean section performed by them increased from 0.45 to 1.9 per cent and averaged 1.6 per cent. The increase was due to a greater incidence of pathological cases on their service as well as to extension of the indications for delivery by the abdominal route.

In the reviewed 180 cases, 134 low cesarean sections by the Kroenig technique were done for pelvic contraction, 8 for placenta previa, 11 for tumor previa, 7 for prolapse of the umbilical cord, 10 for soft tissue dystocia, 3 for premature separation of the placenta, and 3 respectively for fetal distress, cardiac decompensation, and uncontrollable hemorrhage after laceration of the cervix. Three classical cesarean sections were performed respectively for intestinal occlusion, asphyxia from a mediastinal tumor, and traumatic rupture of the spleen.

Prior to 1925 the authors used inhalation anesthesia. Since then they have preferred spinal anesthesia in the belief that it is less apt to be followed by shock and pulmonary complications. It has no effect on the baby and it reduces hemorrhage from uterine atony since it augments uterine contractility. They report 1 death which they attribute to bulbar paralysis.

The total maternal mortality in the cases reviewed was 5 per cent (9 deaths). Six deaths resulted from peritonitis, and 1 each from pulmonary embolism, bulbar paralysis, and septicemia. The 6 deaths from peritonitis can be attributed to the intervention. The gross maternal morbidity was 33 per cent (60 deaths). This included 8 deaths which cannot be charged to the operation.

The net fetal mortality was 3.9 per cent (7 deaths). This does not include deducible deaths such as those due to prematurity. Four fetal deaths were attributed to the intervention.

The authors routinely sterilize all patients at the second operation if both children are alive and the husband and wife consent. Salpingectomy with excision of the uterine cornu is the operation of choice. In the presence of signs of infection such as fever and a rapid pulse and after severe hemorrhage, sterilization is delayed to a later date.

The most frequent indication for cesarean section in the cases reviewed was contracted pelvis. In the 34 cases presenting this indication there were 7 deaths. A test of labor of twenty-four hours was allowed in all except the most pronounced cases, in which operation was performed immediately when the membranes were still intact. In borderline cases the test of labor is not considered adequate until the membranes have been ruptured artificially or

spontaneously. The authors accept Winter's classification and agree that cesarean section is absolutely contra-indicated in cases of definite infection and those in which delivery has been attempted from below. In such cases vaginal delivery preceded by craniotomy is indicated.

Placenta previa was the indication for cesarean section in only 8 of the reviewed cases. The authors are convinced, however, that it should be done more frequently for this condition as their statistics for cases of vaginal delivery show a higher maternal and fetal mortality than those for larger series of cases in which cesarean section was performed. Placenta previa of the central variety should be treated only by cesarean section. In cases of the lateral and marginal types, when this diagnosis can be made delivery may usually be effected by the vaginal route after artificial rupture of the membranes. However, even in these cases the degree of cervical dilatation and the amount of hemorrhage must be taken into consideration in determining whether the abdominal or vaginal route should be employed. For cases in which an exact diagnosis of the type of placenta previa is impossible, the authors advise cesarean section. They caution against version and extraction because of the attendant high maternal and fetal mortality.

When tumors obstruct the birth canal, cesarean section should be done at once or after only a very brief test of labor. The authors report no cesarean sections performed on account of tumor.

Soft-tissue dystocia may be due to anatomical or functional factors. It is often difficult to determine which of these factors interferes with effacement and dilatation of the cervix. In 3 of the authors' cases of soft-tissue dystocia hysterectomy was done because of potential infection. In the rest, only cesarean section was performed. No deaths resulted, but several patients operated upon after prolonged labor suffered from serious postoperative complications.

In cases of prolapse of the umbilical cord cesarean section should be resorted to only rarely. Seven cesarean sections for this condition resulted in 1 death from peritonitis.

The classical cesarean section was performed in only 4 cases and was elected because the poor condition of the patient required quicker delivery than is possible by low cesarean section.

HAROLD C. MACK, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Bechtler, F.: One Hundred and Eighty-seven Cases of Puerperal Sepsis and Pyemia in a Twelve-Year Observation Material from the Women's Clinic of the University at Frankfurt a. M. (Ueber 177 Fälle von puerperaler Sepsis und Pyämie, nach einem 12-jährigen Beobachtungsmaterial der Universitäts-Frauenklinik Frankfurt a. M.) *Monatsh. f. Geburtsh. u. Gynäk.* 1935, 90, 145.

In the past twelve years, 187 cases of severe puerperal, septic, general infection were observed at the

University Clinic in Frankfurt. Of these, 68 (36.4 per cent) terminated fatally. In 134 cases the infection followed an abortion (2.4 per cent of the entire abortion cases). Of these, 57 (1.025 per cent) terminated fatally. Severe puerperal fever developed following childbirth or premature childbirth in 29 cases (0.17 per cent of the entire number of births), and of these cases 4 (0.024 per cent) terminated fatally. In addition, there were 24 cases of puerperal fever in which the woman had already been delivered when she entered the clinic. Seven of these women died. The clinical diagnosis showed that 139 patients were suffering from pyemia, 16 from septicemia, and 29 from mixed infections. Of those with pyemia, 32 per cent died, of those with septicemia, 69 per cent, and of those with mixed infections, 34 per cent.

The author also studied the material with reference to the early venous ligation recommended by Marten. There were found to be 55 patients who had had more than 2 attacks of chills and had recovered nevertheless. On 3 of them venous ligation was undertaken, and all 3 died. The author gives the histories of these cases in detail, then reviews the recent literature with reference to the venous ligation operation. He found that of 32 patients who were treated by ligation 23 died (a mortality of 72 per cent).

Conservative methods of treatment show recoveries in 68 per cent of the cases, these results being better. The author then discusses the various conservative methods of treatment employed at the Clinic at Frankfurt. He found that early serotherapy with "streptoserin" is promising. This serum is especially valuable for prophylactic treatment. Blood transfusion has been undertaken with success in many cases. Definite improvement was seen in several cases following the production of a fixation abscess, and improvement sometimes followed treatment with omnadin, yaten-casein, and auto-blood transfusion. Treatment with dextrose by means of continuous intravenous infusion was also of value (BREUHL). JOHN W. BRENNAN, M.D.

Moir, C. The Merits and Demerits of Oxytocic Drugs in the Postpartum Period. *Proc Roy Soc Med*, Lond, 1935, 28, 1654.

Oxytocic substances are administered during the postpartum period for three reasons: (1) to promote involution of the uterus, (2) to prevent the occurrence of uterine hemorrhage, and (3) to check uterine hemorrhage which has already begun.

Uterine involution is not merely a disuse atrophy but an active and vital process. Contraction or spasm is clearly not an aid to the atrophy and involution of a muscle. Spasm compresses the uterine sinuses and prevents removal of the katabolic products so necessary to bring about the post-partal myometrial changes. The author says, "A septic finger is put at rest too often a septic uterus is whipped into action." He sees no reason for interference during the puerperium as the normal uterus

is quite able to take care of itself and will contract vigorously at regular intervals. He is of the opinion that there is no direct evidence that involution is aided by drugs. He considers the dangers of ergot poisoning which may lead to gangrene of the extremities and discusses various methods of recording uterine activity, the normal uterine activity, the experimental action of glycine, "gravitol," histamine, ergot alkaloids (the ergotamine-ergotamine group), and the new alkaloid, ergometrine. The clinical value of the various ergot alkaloids, especially in third-stage hemorrhage, is compared. Posterior pituitary extract is discussed, but the author suggests ergometrine to be superior in all respects. J. THORNWELL WITHERSPOON, M.D.

MISCELLANEOUS

Novak, E. Some Newer Aspects of Reproductive Physiology. *Am J Obst & Gynec*, 1935, 30, 495.

The most outstanding advance of the past few years in the field of reproductive physiology is the recent work on the chemistry of the male and female gonadal hormones (estrin, progesterin, androkinin) which indicates a close chemical relationship of all three. A similarly close relationship has been demonstrated also between these hormones and certain well-known chemical substances of the sterol group as well as the bile acids, certain vitamins, and certain carcinogenic substances. The relationship to the latter suggests that the cancer problem may be solved by studies of the endocrines.

While reproductive physiology has been concerned heretofore almost entirely with endocrinology, investigators are beginning to go beyond the endocrine glands in explaining certain cyclical phenomena and to speak of a sex center located somewhere in the midbrain. Certain cyclical disturbances of menstruation seem to justify such an assumption and to suggest a possible participation of the posterior lobe. One of the most interesting phenomena coming under this head is the weight increase and edema seen in many women at menstruation and in exaggerated form in the so called generalized edema of menstruation. This type of cyclical water balance disturbance may be seen even in the absence of a bleeding cycle. Its exact mechanism is not known, but its occurrence seems in some way lined up with a change in the globulin-albumin proportions of the blood serum.

Reference is made again to the undoubted possibility that periodical bleeding, clinically interpreted by the patient as normal menstruation, may occur without ovulation. The bearing of this on the study of sterility is obvious for it undoubtedly explains some cases. The technique found most satisfactory in determining whether or not a patient is ovulating is briefly described. Finally, brief reference is made to recent investigations suggesting that menstrual bleeding is due to the withdrawal of progesterin rather than of estrin, as has been generally accepted. Because of the now well-established

chemical relation between estrin and progesterin and the fact that they exert a similar inhibiting effect upon the hypophysis, there is no material change in the concept of the mechanism responsible for men-
strual bleeding. EDWARD LYMAN CORVILL, M.D.

Wicksell, T.: The Behavior of the Anterior Lobe of the Pituitary in Cases of Chorionepithelioma (Das Verhalten des Vorderlappens des Gehirnanhangs in Fällen von Chorionepitheliom). *Grosschil* 1935, 14: 1

The author describes a case of chorionepithelioma of the left labium majus in a twenty-six year-old multipara following a miscarriage. She had had two normal deliveries. The woman died two months after the removal of the fetus in the fourth month of pregnancy. In spite of the removal of the uterus together with the adnexa X-ray irradiation, and blood transfusion. The fetus had not been expelled during the course of the first six weeks (missed abortion).

At autopsy very severe anemia and metastatic formation in the true pelvis and both lungs were found. Microscopic examination of the removed uterus revealed a metastatic formation consisting of syncytial and Langhans cells. The microscopic examination of the ovaries which had been partially removed at operation revealed a degenerative polycystic atretical. No macroscopic changes were found in the hypophysis. The macroscopic examination of the glandular portion of the hypophysis revealed a large number of acidophilic cells, somewhat fewer chief cells, and only a small number of basophilic and pregnancy cells. Colloid cysts were found neither in the glandular portion of the hypophysis nor in the pars intermedia. According to the author the metastatic formations developed during the course of the missed abortion.

The author asserts that in the case described, as revealed by the microscopic examination, there was a suppression of the involutional pregnancy changes in the glandular portion of the hypophysis, a fact which must be correlated with the formation of the metastases. The microscopic picture found by the author recalls the description of the hypophysis of Berthinger. The author does not state with which of the glandular cells of the hypophysis the hyperplasia (which occurs in the event of chorionepithelioma) is to be correlated. He is restricted by the technical inadequacy of the microscopic examina-

tions the small amount of autopsy material the necessity of considering the duration of the pregnancy the time at which the disease began, and the clinical and anatomopathological character of the chorionepithelioma, and finally by the results of his examinations which were contradictory to those obtained by Berthinger and Stoeckel. According to the author the same relationship exists between the glandular portion of the hypophysis and degenerative polycystic atretical ovaries, or hyperthelasia, as between the former and hyperthelasia which always accompanies hyperthelasia.

(9 107 SCHMIDT 141) HARRY A. SALTMAN, M.D.

Adair, F. L., Davis, M. E., Kharasch, M. S., and Logan, R. R.: A Study of a New and Potent Ergot Derivative. *Ergotocin*. *Am J Obs & Gynec* 1935 30: 446

The authors have isolated in crystalline form the active principle of ergot which is responsible for most if not all, of the desirable oxytocic effect of ergot. They call this substance "ergotocin." It is potent in minimal doses by various methods of administration. It does not deteriorate readily and it is constant in its action. It is relatively free from untoward or undesirable effects. Its margin of safety is very great as its toxicity is very low. It has no apparent detrimental effect upon the respiration, pulse, blood pressure or urinary output. It is therefore of value in cases with evidence of cardiovascular or renal disease or toxemia in which an oxytocic action is required. While the authors are not advocating its use in the third stage of labor they believe it may be employed in this stage as safely as, and more effectively than, any other known oxytocic drug. It is extremely valuable in stimulating uterine contractions in the immediate and remote post-abortion and postpartum periods. Its prompt effect in producing tetany and contraction of the uterus and its prolonged action make it of special value in the control of postpartum hemorrhage.

In conclusion the authors say that with the isolation of ergotocin the age-old problem concerning the oxytocic principle in ergot apparently has been solved. We now have all the desirable potent oxytocic activity in ergot isolated in a crystalline form which is stable and non-toxic. Ergotocin can be used safely whenever oxytocic therapy is indicated.

EDWARD LYMAN CORVILL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Penzold, J. Experiences with and Results of the Treatment of Tuberculosis of the Kidneys during the Years from 1923 to 1933 at the Surgical Clinic at Leipzig (I Erfahrungen und Ergebnisse bei der Behandlung der Nierentuberkulose in den Jahren 1923-1933 an der Chirurgischen Klinik zu Leipzig) 1935 Leipzig, Dissertation

In this dissertation Penzold reports on thirty-one cases of tuberculosis of the kidney in Pavr's Clinic. Of these, twenty-four occurred in male and seven in female patients. However, in consideration of the statistics from other clinics, it may be assumed that males are affected slightly less often than females. Persons of from fifteen to forty years were affected predominantly (twenty-five cases). Six patients were between forty and fifty-five years of age.

The author discusses the various theories of the excitation of the infection and its pathogenesis. He found the primary disease on the right side in sixteen persons (one female), localized in the left kidney in nine persons (six females), and bilateral in six cases (no female). Urophthysis is almost never a primary disease, even though the proof of this is possible in barely half of the cases. The primary focus was found at another site at autopsy without exception. The usually well known facts regarding the pathology of tuberculosis were reviewed. The caseous-cavernous form of tuberculosis was present in all of the thirty-one cases.

One third of the patients came to the clinic only because of bladder symptoms, not having any renal symptoms. In the remaining cases renal pressure and tension or colics, which radiated toward the bladder or testicles, were present. It is a noteworthy fact that the pain is referred reflexly to the healthy kidney and disappears after the removal of the diseased kidney. All of the patients had symptoms which pointed to the bladder. Hematuria without involvement of the bladder was observed in three of the patients as the first symptom. One patient observed a preliminary hemorrhage three years before he sought a physician. Cloudiness of the urine was always found. Usually there was a slight rise of temperature, occasionally also a high temperature, but often there was no fever and the general condition was of the best. The urine was acid in 90 per cent of the cases, and alkaline in only two cases. It was impossible to say whether a mixed infection, which was otherwise observed in 32 per cent of the cases, existed in these cases. In the author's material the microscopic evidence of tubercle bacilli was obtainable in only fourteen cases. He favors the routine use of microscopic and cultural procedures and animal experiments. Any of the methods may occasionally result in failure, but they supplement one another and the routine use of all three gave the

best results. Difficulties may be encountered in the cases of bacilluria in which there is no tuberculous involvement of the kidney. A case of this kind is reported in detail.

The author then discusses the results of endoscopic examination. The examination of the urine from the ureters offers the certain diagnosis of the condition of both kidneys and, especially, the accurate determination of the healthy kidney. When no tuberculous bacilli are demonstrable in the urine from the second kidney, if the sediment is normal, and if the function is good, it may be claimed that the kidney is healthy. Transvesical pyelography renders excellent service. The testing of the total function of the kidneys may, with proper findings, at best prevent the undertaking of a nephrectomy. The testing of the function of the solitary kidney is impossible. The Leipzig Clinic claims that the indogocarmine test has given the best results.

Röntgenography alone offers little help. The pyelogram can only supplement the other methods of examination, it gives some information about the site of the disease, but none as to its specificity. Intravenous pyelography is used when the transvesical cannot be done, and the Clinic seems to attach some value to delay in excretion.

In regard to surgical interventions for diagnostic purposes when it is impossible to obtain definite results by other methods of investigation, the exploratory exposure of the kidney is very uncertain. In two cases the ureters were catheterized through the open bladder, but the results were very unfavorable. The following injuries were observed as a result of diagnostic intervention: military tuberculosis, once, and aggravations following a diagnostic opening of the ureter and the introduction of the cystoscope, four times. Three of the patients did not survive this intervention for long. This number of injuries in the small number of cases is striking and gives rise to the doubt whether the intra-urethral interventions were carried out with the care that should always be taken in the presence of involvement of this portion of the tract.

Of the author's thirty-one patients, twenty-four were nephrectomized, seven were not operated upon, one because of general tuberculosis, one because of extensive urogenital tuberculosis, and five because of the condition of the second kidney. Of the seven patients not operated upon, six died two years after the beginning of the disease and one was in a poor condition.

The author then discusses the therapeutic results. Practically, a true spontaneous healing cannot be expected in the beginning of the disease, that is, in unilateral renal tuberculosis, except in the occasional "autonephrectomy," exclusion of the kidney by ob-

literation of the ureter. However the danger focus for the body remains in such a case and the patient can resume his normal life only after extirpation of the organ. Only an improvement in the general condition but no local effect can be expected from heliotherapy and climatotherapy. Tuberculin therapy also shows little effect. (It was not tried by the Leipzig Clinic.) Four fatalities were observed among the twenty-three cases which were operated upon at the Clinic. In one case military tuberculosis had already existed before the intervention and became manifest only later. In another, there was bilateral involvement in the third, which terminated fatally four months after the operation. Autopsy was refused and in the fourth, the patient, who had been discharged against medical advice, presented several postoperative complications and died two and one half months after the operation. The remaining patients showed a definitely favorable effect of the operation. The rises of temperature disappeared after from ten to fourteen days and the body weight increased rapidly.

The operative care of the stump of the ureter is of interest. It was dissected free, ligated as near as possible to the vesical ostium, and divided with the Paquelin cautery and drainage was applied to the stump. This method, according to Israel, gave very good results at the Clinic. Of the patients operated upon, fifteen showed a good general condition for from seven and one-half to ten years after the operation. Four presented an unsatisfactory general condition and one died six years after the operation. Of those operated upon, thirteen were free from renal and vesical symptoms, some for from five to ten years after operation, six had disturbances of micturition, four had renal pains at times, and three were unable to work. A number of tables show details of the disturbances in percentages and with reference to the time which has elapsed since the operation. The Leipzig Clinic observed the great tendency to heal of the secondarily diseased bladder when the constant reinfection from the kidney was removed, and that the bladder could be brought to heal after a successful operation. It is a striking fact, that according to nearly all statistics the curative results in females were decidedly better than in males. The former even though they did not come to the clinic earlier than the men, came in a better state of operability and had better operative and permanent results. This is explained by the anatomical structure of the urogenital system in men, also by the tendency toward tuberculous involvement of the prostate and seminal vesicles, urethritis, and urethral strictures with their poor prognosis. (Jahresber.) LOUIS MACKENZIE, M.D.

Myke, G. von. *Clinical Results in Carcinomas of the Kidney Bladder and Prostate* (Erfahrungen an Nieren-, Blasen- und Prostatakreben). *Zschr. f. urol. Chir.* 935 41 1-3.

Of 152 cases of carcinomas of the kidney 31 came to operation, and of the latter 18 were found to be

inoperable while in the rest the involved kidney was removed. Among the last 113 cases, the histological examination revealed hypernephroms in 96, carcinomas in 4 (1 eighteen-year-old female), angiosarcoma in 1 and nodular tumors of the kidney and the pelvis or ureter in 12. Of 385 tumors of the bladder, 218 were papillomas and 167 carcinomas. Of 1,049 cases in which prostatectomy had been performed, a carcinoma-like fibrosis could be demonstrated in 27 through the help of the histological examination. In addition, 389 cases were diagnosed as carcinomas of the prostate. The mortality and late results were arranged in tabular form.

The author summarizes his results as follows:

Among 154 malignant tumors of the kidney hypernephroms was the one most frequently diagnosed early through the aid of pyelography. This form of kidney tumor is best removed through the retroperitoneal route. The operative mortality was 17 per cent, while 35.3 per cent of the patients remained free from recurrence for more than a period of three years. The nodular tumor of the kidney can usually be diagnosed by means of pyelography and should be treated by radical operation. In the 385 cases of tumor of the bladder papilloma occurred more frequently (56.6 per cent) than carcinoma (43.4 per cent). The papilloma is to be regarded as a precancerous tumor as it often undergoes carcinomatous degeneration. It can be diagnosed by means of cystoscopy or cystography. In cases of carcinoma, resection of the bladder should be carried out when the tumor is situated favorably. If this is not possible, it should be treated with radium and prolonged and frequently repeated X-ray irradiation. The operative mortality after resection of the bladder was 9.2 per cent. Three of the patients lived more than four and five years after the operation. Following radium and X-ray irradiation, only 1 patient lived for a period of three years. In carcinoma of the prostate radical operation after positive diagnosis comes too late in most instances. The best results are obtained in those cases in which prostatectomy has been performed because of prostatic hypertrophy. The radical operation may also be performed when the histologically diagnosed carcinoma produces difficulties in micturition, provided the general condition of the patient permits.

The article contains three tables.

(CONCISE) HARRY A. BALCHANCE, M.D.

BLADDER, URETHRA, AND PENIS

Gourmeiller V. S. and Merville J. G.: Congenital Valves of the Posterior Urethra. *J. Urol.* 911 34 568.

Congenital valves of the posterior urethra obstruct the flow of urine and by causing backflow and pressure produce renal damage which seriously endangers life. Such valves have been attributed to (1) enlargement of the various folds and ridges of the normal urethra (Tolmachew) (2) the persistence or remnants of the urogenital diaphragm (Bary) (3) an

anomalous development from the wolffian ducts and Mueller's ducts (Lowsley), and (4) fusion of the colliculus, at an early stage of its development, with the roof of the posterior urethra (Watson). No one of these theories satisfactorily accounts for all types found. If the child survives birth the anomalous valves will become manifested by symptoms of obstruction at an early age. A review of eighty-four cases in the literature reveals that in 75 per cent the symptoms appeared at or before the tenth year of age and in 52 per cent at or before the fifth year.

On microscopic section valves of the posterior urethra usually show young or mature fibrous tissue cells which are covered with stratified squamous epithelium and are infiltrated with lymphoid cells. A valve which obstructs will inevitably produce hypertrophy and dilatation of the vesical wall, dilatation of the ureters and pelvis, and atrophy of the renal parenchyma. A funnel-shaped or relaxed vesical outlet and a dilated posterior urethra proximal to the obstruction are other frequent findings. Dilatation of the ureteral orifices and hypertrophy of the trigone may or may not be associated. The frequency of leucocytes in the urine in valvular obstruction of the urinary tract is in accord with the adage that urinary stasis predisposes to infection. Infecting organisms of various types have been reported.

The signs and symptoms may be classed as early and late. The early ones are produced by local obstruction and infection, while the late ones are manifestations of impairment of renal function secondary to urinary obstruction. The degree and duration of obstruction and infection regulate the signs and symptoms as well as the associated pathological changes. In the cases of children, fretfulness, loss of weight or failure to gain weight, protuberance of the abdomen secondary to distention of the bladder, and difficulty in starting the urinary stream and in voiding are among the early manifestations and may date back to birth. Dribbling of the urinary stream, which is associated with various degrees of incontinence and is probably the result of incomplete emptying of an over-distended bladder, is frequent. The predominating symptoms are often produced by infection. Infection is manifested by chills, fever, and persistent pyuria. Gastro-intestinal symptoms are frequently present, and in severe cases may lead to an incorrect diagnosis. In the cases of adults, the obstruction is usually slight. Common symptoms are difficulty in voiding, retention of urine, and dysuria. Marked obstruction of long standing results in signs of renal damage, nausea, vomiting, anorexia, drowsiness, and coma. The resistance of the patient in the later stages of the disease is poor. Intercurrent disease, particularly pneumonia, is a common complication.

The logical interpretation of an accurate history and physical examination will lead to proper urological procedures and usually to a correct diagnosis. The examination should be carried out with the aid of a cystoscope, urethroscope, or cysto-urethroscope. A cystogram is of aid in demonstrating the dilated

ureters and pelvis. Intravenous urography should always be used to estimate the associated renal damage. Laboratory tests should be carried out as indicated, but a urinalysis, a determination of the amount of urea in the blood, and a culture of the urine in cases in which there is pyuria should be routine procedures.

The treatment is based on the relief of urinary obstruction. If the general condition is poor, extensive treatment should be postponed and palliative measures, including drainage with the catheter, the proper administration of fluids, rest, nourishment, and medication, should be instituted. In cases in which instruments can be passed into the urethra, the condition should be treated transurethrally in a manner similar to the methods used in prostatic resection. In cases in which a transurethral approach is not thought feasible, the valves can be resected suprapubically. A perineal approach may be used, but is thought to be inferior to the methods previously mentioned.

Severe renal impairment, especially in the presence of infection, renders the prognosis unfavorable regardless of the treatment, but in all cases in which there is good renal function and proper treatment is given the prognosis is good.

The authors report in detail, including the autopsy findings, the case of a boy seven and a half years old. The patient's brother died with similar symptoms at the age of six months.

Landes, H. E., and Rall, R. Congenital Valvular Obstruction of the Posterior Urethra. *J. Urol.*, 1935, 34, 254.

Congenital valvular obstruction of the posterior urethra is not so uncommon as the literature indicates and should be borne in mind in the diagnosis of apparently insignificant disturbances of urination in young males. The etiology of the valvular folds in the posterior urethra is still controversial as the different theories explain satisfactorily only one type or another. The symptoms produced by such folds depend upon the degree of the obstruction and the presence or absence of infection. Renal damage occurs in the later stages as in bladder-neck obstruction in the adult male. It is important to relieve the obstruction before the renal damage is beyond repair. The treatment indicated is surgical removal of the obstructing fold or folds of mucosa either transurethrally or suprapubically. The preliminary care should be the same as in bladder-neck obstruction in the adult male.

The authors report two cases, one that of a boy of six and one that of a man of forty-two, and tabulate a large number of cases collected from the recent literature. ANDREW McNALLY, M.D.

Overhof, K. The Treatment of Carcinoma of the Penis (Die Behandlung des Penis carcinomes). *Röntgenpraxis*, 1935, 7, 468.

The author reports on twenty-two cases of carcinoma of the penis which he observed since the year

1935. He divided them into four groups. In Group I primary operation was done and followed by immediate roentgen irradiation. In Group II primary operation was done without subsequent irradiation; roentgen therapy was instituted only when there was a recurrence. In Group III only irradiation therapy was given. In Group IV the treatment was begun with irradiation therapy which was followed by operation and in some cases additional roentgen irradiation.

Of the four patients in Group I, one died after three years and the three others remained alive for from three to five years. Of the four patients in Group II, three died before the end of two years, and only one lived during the second year after the beginning of the treatment. Of the eight patients in Group III, five are still alive, one living two years, two three years, one, four years, and one, more than six years. Of the patients who died, one died in the first year and one each after three and four years. Of the six patients in Group IV, three are still alive and three have died (those who died did not survive the second year). Two of those living have been cured for over six years. Groups I, III, and IV show a nearly like duration of life, from three and four-tenths to three and eight-tenths years, while Group II shows an average duration of life of only one and five-tenths years. The patients were almost exclusively in the fifth and sixth decades of life. The youngest was thirty-seven years of age and the oldest eighty-two years.

The site of the tumor was usually the glans, rarely the prepuce or the shaft of the penis. The ulcerations were all extensive. The proportions of the ulcerating and the cauliflower-like formations were about the same. In sixteen of twenty-two cases glandular swellings were found in both of the inguinal regions. The histological examination revealed metastatic carcinomas in six cases and non-specific glandular swellings in the remainder.

The primary tumors were all squamous-cell epithelial carcinomas with slight or more marked hornification. Phimosis was present in five cases.

The technique of irradiation was not always the same. Fractional-rhythmic irradiation with diminishing dosage is practiced at the present time. The inguinal glands were irradiated with diminishing dosage also. An accurate description of the scheme of dosage is given. Altogether 340 per cent skin-unit doses were administered in the course of from three to four weeks. A surface dose was given to the penis and a 280 per cent skin-unit dose to the surface of each of the inguinal regions. A marked roddening appears at the end of the treatment. At the end of from three to four months a second series of treatments is given. A case in which treatment consisted of irradiation alone and a three-year cure was obtained, is illustrated.

A comparison of the individual groups shows that roentgen irradiation therapy alone is justified and leads to success in quite a large number of patients. The possibility of a later operation if necessary is

not excluded, and the operability is not impaired. On the contrary a recession of the tumor usually occurs and the irradiation of the inguinal lymph nodes reacts favorably in regard to preventing a recurrence. Patients who have had a primary operation should always be given a prophylactic irradiation of the inguinal lymph nodes as in recurrence of a carcinoma of the penis that has been subjected to a primary operation without roentgen irradiation secondary roentgen irradiation of the recurrent promises only very little success.

(Rutgers). LOUIS MEYER, M.D.

GENITAL ORGANS

Loughmane, P. McG.: Endoscopic Resection for Enlarged Prostate. *Brit. J. Urol.* 1935, 7: 941.

The author describes the anatomy and physiology of the bladder with special reference to the act of urination. He believes that in prostatic disease two factors come into play: interference with the sphincter causing failure to open and actual mechanical obstruction. In his opinion the transurethral operation for prostatic disease is gaining favor justly as all but very large benign prostates can be successfully treated by this means and the mortality morbidly period of hospitalization, and expense are less than when the open operation is performed. However he believes that frank carcinoma of the prostate with obstruction should be treated by permanent suprapubic cystostomy.

He states that the future of prostatic surgery lies with the general practitioner that if patients with enlargement of the prostate are referred to the surgeon early before kidney function is markedly impaired and obvious sepsis is present, the mortality of endoscopic resection will be low.

THEODORE P. GRACEY, M.D.

Patch, F. B., and Rhee, L. J.: Leiomyoma of the Prostate Gland. *Brit. J. Urol.* 1935, 7: 313.

Patch and Rhee add another case of leiomyoma of the prostate gland to the ten cases previously reported. Their report is based upon a thorough gross and microscopic study of the autopsy specimen. The enlargement was bilateral but chiefly intravascular. Microscopically the tumor consisted of smooth muscle fibers with a circumferential arrangement. Although a special search *as made*, no glands or epithelial cells were found in the leiomyoma. The authors discuss the opinions of various urologists regarding the possibility of occurrence, the etiology and the site of origin of true leiomyomas of the prostate.

FRANK M. COCKRELL, M.D.

Utens and Grépinet: Sequelles and Complications After Apparent Cure Following Suprapubic Prostatectomy (Des séquelles et des complications après la guérison chez les opérés de prostatectomie suprapubienne). *J. Urol. Méd. et Chir.* 935, 40: 5.

The author states that some weeks after suprapubic prostatectomy the patient may begin to suffer

from dysuria. Retention is severe and urinary infection is established. The causes of these complications are variable. The most common cause is a flap of mucosa which separates the bladder from the prostatic fossa. Other causes are stricture of the urethra where it is torn from the prostate, and cancer. The diagnosis is made by urethrography or suprapubic cystostomy. For the sectioning of a flap of mucosa special urethrotomes (Marion) have been devised.

Calculi are prone to form about threads from the gauze packs, fragments of tissue, etc. They are usually soft and friable and are readily destroyed by lithotripsy.

Among the infections that may occur is a peculiar ligneous phlegmon of the remaining prostate. Chronic purulent seminal vesiculitis has been reported. Epididymitis, ordinarily an early complication, may appear as long as two years after the prostatectomy.

Incontinence of urine is rare. Occasionally it is due to calculi or to persistence of the urinary infection. A certain degree of frequency (especially nocturnal) is to be expected. Residual urine of partial retention occurs chiefly in advanced cases of prostatism with a large hypertrophied bladder.

ALBERT F. DE GROAT, M.D.

Dorff, G. B. Maldevelopment and Malescent of the Testes. Report of Treatment with the Anterior Pituitary-Like Gonadotropic Hormone from the Urine of Pregnant Women. *Am J Dis Child*, 1935, 50: 649.

The author treated fourteen boys ranging from six to thirteen years of age who showed maldevelopment or malescent of the testes. The gonadotropic anterior pituitary-like hormone obtained from the urine of pregnant women was used. The treatment was begun after puberty. In some cases the amount of hormone employed was large. Of eight cases of undescended testis, all but one in which there was mechanical obstruction responded to the administration of the hormone. The author believes that operation should not be done until hormone therapy has been tried for one year without success.

The cases of maldevelopment were divided into two groups: (1) those of so-called adiposogenital dystrophy, and (2) those with mild or masked hypothyroidism evidenced by retardation of general and osseous development.

Under hormone therapy, with thyroid when indicated, the testes increased in size, the scrotum filled out and progressed toward normal development, undescended testes increased in size and descended, the penis enlarged in size and thickness, pubic hair appeared, the epididymides and prostate were stimulated, a congenital hernia, if present, sometimes became corrected, and the general mental aspect changed.

The largest amount of hormone used was 45,000 rat units. The concomitant use of anterior pituitary growth hormone did not reduce or increase the action

of the gonadotropic hormone. In none of the cases were there changes in the breasts.

ANDREW McNALLY, M.D.

Teneff, S. The Indications for, and End-Results of, Operations for Undescended Testicle (Indicazioni e esiti lontani dell'operazione per testicolo ritenuto). *Clin chir*, 1935, 11: 719.

Teneff reports forty-six orchipexies performed on thirty-seven patients at Uffreduzzi's clinic in Turin during the past twelve years. He believes that the conditions of testicular retention in man cannot be reproduced experimentally. Histological researches show that the undescended testicle retains fetal characteristics (lobulation and masses of undifferentiated interstitial cells), i.e., that it is a congenital anomaly and incapable of normal development. The atrophy is secondary to the hypoplasia although the unfavorable position may aggravate pre-existing lesions and hasten regression.

Operation is therefore indicated not so much for correction of the position, the prevention of atrophy, and favoring of the external and internal functions of the organ as for the cure of a concomitant hernia, the prevention of torsion of the cord, the correction of the deformity, and psychological reasons. Congenital hernia and communicating hydrocele are absolute indications. The possible prevention of a malignant tumor is not an absolute indication because tumor formation is connected exclusively with the fetal structure of the organ. Of great importance and requiring just evaluation are the psychic and nervous disturbances which often accompany undescended testicle. An operation may remove a sense of inferiority and pre-occupation with the condition, or improve a neuropathic state in a psychically abnormal individual. It is advisable to defer operation until the end of puberty unless some urgent indication arises or nervous symptoms are present.

In the cases reviewed Uffreduzzi's method (fixation of the testicle to the crural fascia) was used. The author presents summaries and a statistical analysis of the cases. Twenty-six patients who had thirty-three orchipexies (71 per cent of the total number of operations) were observed at various periods up to twelve years following the operation. In 84 per cent of these the permanent anatomical results were excellent and in 12 per cent, mediocre. In 3 per cent the testicle atrophied.

The article is supplemented with illustrations and an extensive bibliography. M. E. MORSE, M.D.

Mathé, C. P. Suppurative Orchitis. Its Diagnosis and Treatment. *J Urol*, 1935, 34: 324.

Mathé reports a case of testicular abscess which followed instrumentation. He states that as compared with epididymitis and simple orchitis, suppurative orchitis is relatively infrequent. Infection of the testicle may occur by way of the blood stream, the lymph channels, or the vas as the result of torsion of the cord, trauma to the testicle, or toxic

poisoning. It may occur in patients with gonorrheal or non-gonorrheal infections.

The best method of treatment of suppurative orchitis is early incision and drainage.

FRANK M. COOMBS, M.D.

Seror, M.: Chorionepithelioma of the Testicle (Le choriopithécome du testicule). *Rev. de chir. Par.* 1935, 54, 648.

Though chorionepithelioma of the testicle has many analogies with chorionepithelioma in women, the author concludes that it is a special form of tumor peculiar to the testicle. The typical forms present Langhans cells, syncytium, migrating chorion cells intermediate between the Langhans cells and the syncytium, and islands of hemorrhage. Atypical forms may present a typical cystic appearance, an alveolar appearance, due to lakes of blood, a reticulate appearance, a homogeneous appearance, or a diffuse appearance with migrating chorion cells distributed irregularly along the vessels. This great diversity in histological appearance makes microscopic examination difficult.

The tumor appears between the ages of twenty and thirty years, during the period of most intense sexual activity. Cases have been reported in children as young as twenty-one months and men as old as fifty years. The neoplasm is quite frequently associated with gynecomastia. Among 150 cases studied the author found gynecomastia in 15 (10 per cent). However gynecomastia occurs in association with other forms of tumor.

The symptoms of chorionepithelioma are the same as those of any malignant tumor of the testicle. Very frequently signs of metastasis develop before local signs of the primary tumor. The lungs are the most frequent site of metastasis, and patients with metastases have often been treated for pulmonary tuberculosis. In about half the cases enlargement of the testicle is the first sign. This is accompanied by a pulling sensation in the scrotum irradiating toward the lumbar region. The scrotum is supple and not adherent. The tunica vaginalis does not appear to be thickened. There is sometimes a slight effusion in it. The testicle is hard at its lower posterior pole which is the most frequent site of the tumor. Palpation is not very painful. The epididymis is generally normal in size and consistency. At a later stage the whole testicle and epididymis are invaded. Even in these cases the prostate and seminal vesicles are normal. Still later there is hypertrophy of the

lingual glands. Fungi are never seen because the patients die of generalization of the disease before they have time to develop. The general health fails rapidly. Emaciation and marked anorexia occur. The patient is very pale and has a slight fever. The secondary sexual characters are very little affected.

The disease is extremely malignant. As a rule the patients do not survive more than eight to ten months. Death is caused by very rapid generalization of the tumor. Of 41 cases studied from this point of view metastases occurred in the lungs in 24 and in the lymphatic glands in 19. Early diagnosis is very difficult. Generally the most that can be done is to make a diagnosis of tumor of the testicle, leaving the exact diagnosis to histological examination. The mortality is 90 per cent in six months varying from five to eighteen months. Only 5 cases have been known to be treated by castration and radiotherapy and cured for more than two years.

The gland should be removed as soon as diagnosis is made unless metastases have occurred, when its removal is useless. Removal of the gland may be supplemented by radiotherapy. Chorionepithelioma is not very sensitive to irradiation. Telecobalt therapy has been advocated by American authors. Large doses are necessary.

ALEXANDER GORE MORROW, M.D.

MISCELLANEOUS

Parker, G.: The Elimination of Pain from Urological Investigations. *Brit. J. Urol.* 1935, 7, 198.

The author emphasizes the importance of gentleness and a careful technique in the prevention of pain during urological examinations. Before passing the cystoscope or other instruments he insinuates a 4 per cent solution of novocain into the urethra and has the patient retain it for fifteen minutes. If the urethral orifice is small in the male, he performs a meiotomy to prevent the pain of stretching. After cystography he washes out the sodium iodide solution with a 2 per cent solution of sodium bicarbonate and instills 500 c.c.m. of a 5:10:000 solution of percalin into the bladder. After ascending pyelography he empties the renal pelvis by suction and introduces 4 c.c.m. of a 4 per cent solution of novocain before removing the catheters. He recommends general spinal and sacral anesthesia only for cases in which great difficulty is anticipated.

THOMAS P. GRANT, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Brailsford, J F *Dystrophies of the Skeleton Brit J Radiol*, 1935, 8 533

This article classifies certain well-defined groups of dystrophies of the skeleton by their characteristic roentgenographic appearances

Albers-Schonberg's disease is characterized by the formation of dense new bone devoid of a normal cancellous structure and with a tendency toward fragility the degree of which varies with the age of the patient and the stage of the dystrophy These changes are most striking in the extremities of long bones Opinions differ as to the physical character of the bones Pirie described the affected bones as cutting like chalk, while Henderson found them so hard that they broke the edge of the chisels or drills This latter opinion is supported by Alexander Clinically, there is little or no deformity Only forty typical cases have been recorded since the condition was first described in 1904

Osteogenesis imperfecta in the infant is characterized by marked osteoporosis, defective moulding, and fragility followed by dwarfing and deformity of the bones The dwarfing is due to bending of the affected bones, particularly the spine Ateleotic dwarfs or midgets are miniatures of the normal

The achondroplastic dwarf has a large head, coarse features, a normal trunk, and short well-developed limbs Roentgenographically, the tubular bones, though short, exhibit prominent tuberosities for muscular attachments and striking development of the tissue of the shafts Ossification proceeds with normal regularity both in time and appearance except for premature fusing of the bones at the base of the skull and shortening of the tubular bones This deformity is apparently due to a primary defect in the chromosomes resulting in defective development of the chondrous skeleton

Clinically, chondro-osteodystrophy presents kyphosis and swollen joints developing in childhood By the age of five or six years, the child shows marked shortness of the trunk with relatively normal limbs Roentgenographically, the dystrophy presents irregular growth of the epiphyses which is most striking in the bodies of the vertebrae The vertebral bodies may appear unequal in size, shape, and position

The dystrophies described involve both the epiphyses and the diaphyses, whereas multiple exostoses and multiple chondromas involve only the diaphyses

In instances of multiple exostoses, hard tumors develop, usually near the end of the long bones, and may appear early in infancy or escape recognition until adolescence or even adult life They ap-

pear roentgenographically in the infant as small projections from the periphery of diaphyseal extremities In old cases, the trabeculation at the base of the exostoses becomes coarse Frequently with surgical removal of these exostoses when they have become large enough to impede movement, and sometimes without intervention, sarcomatous metaplasia and consequent death may result This development is shown roentgenographically by a rapid increase in the size of the tumor and blurred outlines of the exostosis

Multiple chondroma presents extreme deformities, bilateral but asymmetrical Roentgenograms show destruction of bone, the lesions appearing as defects or gaps in ossification Shortening of one or more limbs results from this disturbance in growth Marked deformity of the hands and feet may be prevented by operation as advocated by Dunn before involvement of the joints

A knowledge of the roentgenographic appearance of these dystrophies is important in the differential diagnosis None of the dystrophies has been found to present characteristic histological findings or specific biochemical reactions, and apparently none is related to endocrine dysfunction Except for those which may be treated by local surgical excision, they may not be checked in development

There is very strong evidence that a hereditary taint is an important factor in the causation although it has not been definitely traced in all cases

RUDOLPH S REICH, M D

Brailsford, J F *Bone Changes Simulating Tuberculosis or Tumor Lancet*, 1935, 228 1487

An ossifying hematoma resulting from a minor injury may develop over the shaft of a metatarsal bone and be mistaken for an osteogenic sarcoma Healed lesions due to sepsis, tuberculosis, or syphilis may show irregular calcium deposits which may simulate malignancy

A false diagnosis of tuberculosis may cause an unnecessary long confinement and attach a stigma to the patient for life For this reason a diagnosis of tuberculosis of a joint should never be made until the roentgen ray shows the characteristic bone changes

Serial roentgen examinations are valuable in cases of doubtful diagnosis, especially in osteochondritis of the hip (Legg-Perthes disease) In this condition the earliest examination may be completely negative although the clinical signs are definite Another roentgenogram made six or eight weeks later will show an increase in the density of the femoral head soon followed by linear zones of translucency running along the bone trabeculae, a similar zone across the end of the shaft next to the epiphyseal line, and

Irregular translucent areas in the neck farther away from this line. Several months later the dense epiphysis begins to show signs of compression fracture and soon thereafter it becomes disintegrated into irregular dense fragments. These dense islands of bone gradually become absorbed and the final appearance after about eighteen months is that of a flattened head. If weight-bearing is allowed during this time there will be permanent deformity. The acetabulum also may be involved and become deformed. Following absorption of the epiphyseal fragments, regeneration of the epiphysis may occur.

A review of seventy-one cases showed that fifty-three of the patients were boys and eighteen were girls. The ages ranged from three to fifteen years. The earliest and most constant clinical symptom is a limp. The leg shows adduction and the great trochanter is prominent. Treatment should consist in immobilization as long as the roentgen ray shows a 'plastic' condition of the femoral head, which may be as long as four years.

In the differential diagnosis the principal diseases to be considered are tuberculosis, septic arthritis, endocrine disorders, chondrodystrophies, and rickets. In tuberculosis there is more pain, more limitation of movement and more wasting of muscles. The roentgenogram shows more osteoporosis and more destruction than in osteochondritis, and the final appearance is that of extensive destruction. Septic arthritis will cause a high temperature and more bone destruction going on to the formation of a sequestrum with ankylosis as a common result. Endocrine disorders may cause an irregular appearance of the epiphysis, but the changes will be more regular than those of osteochondritis and other epiphyses will be similarly affected. In chondrodystrophies, also, the lesions will be found to affect more than one bone or joint. The same may be said of rickets, which is practically always bilateral.

Following injury to the wrist there sometimes develops an osteoporosis of the carpal bones, especially of the scaphoid, where the condition is known as Preiser's lesion.

Symptoms. Symptoms of the trauma subside, but after several weeks pain and limitation of motion recur. The roentgenogram at this stage will show a cyst-like area of rarefaction in the scaphoid, with sometimes a fracture line running through it. The wrist should be put at rest. Surgical exposure will reveal a scaphoid intact on its surface, but with dense irregular bone fragments within it.

Osteochondritis dissecans is a disease of articular cartilage which results in the separation of small fragments. It is usually in the knee and is sometimes bilateral. The patients are young adults. The loose bodies which form are due to the sequestration of subchondral bone. The patient complains of intermittent locking of the joint. Usually these symptoms have persisted for several months before the surgeon is consulted. A definite diagnosis is made by finding shadows of the loose bodies in the roentgenogram. These shadows may be regular or bony in outline, depending on the extent of absorption of

the calcium. The bones of the joint are normal in appearance.

WILLIAM ARTHUR CLARK, M.D.

Nunes de Almeida, J.: A Case of Multiple Myeloma (Um caso de mieloma múltiplo). *Arquivos de ped.* 1934, 6: 485.

Multiple myelomas are specific malignant tumors of the bone marrow which may originate from any of the normal elements of bone. Their essential characteristic is multiple foci of origin. After giving a clinical, roentgen, and histological description of these tumors, the author reports the case of a man about sixty years of age who was observed at the Portuguese Institute of Oncology. When the patient came for treatment he had two quite large tumors, one on the right scapula and the other on the sternum. For some years he had had pain in his right arm and shoulder. Early in November, 1931, on making a sudden movement with his arm, he felt intense pain in the right scapula, and shortly afterward a tumor appeared in this region.

As there was some uncertainty as to whether the tumors were sarcomas or myelomas, a biopsy was performed. Histological examination of the tissue in connection with the roentgen picture showed that they were myelomas. The patient died in a condition of profound cachexia in June of the following year. Autopsy confirmed the diagnosis. There were two metastatic nodules in the liver. Histological examination showed that they had exactly the same structure as the bone tumors. The fact that there had never been any changes in the urine or blood that were characteristic of the disease shows how difficult it is to establish the diagnosis in some cases.

ARTHUR GOME MONTEIRO, M.D.

Ghollani, G. M.: Osteochondromatosis—Osteocartilaginous Loose Bodies—in Relation to Osteogenesis and Chondrogenesis (L'osteochondromatose—corps mouls osteo-cartilagineux—in rapport avec l'ostogénèse et chondrogénèse). *Cher. et appl. de médecine* 1935, 22: 224.

The author became interested in osteochondromatosis after he observed the development of foreign loose bodies in a joint several years after an operation. A detailed report of this case is given.

Trauma is probably most important in the production of loose bodies which are found in the joints or bursae. Repeated minor traumas to the capsule may be sufficient to cause a reactive proliferation on the part of the cells lining the capsule. The resulting alteration in the blood supply with venous stasis or ischemia may be important. Following these primary and secondary retrogressive changes the processes of cartilage and bone transformation may begin.

A LOUIS ROSE, M.D.

Ings, G. A. L., and Towney, J. W., Jr.: Experimental Staphylococcal Suppurative Arthritis and Its Treatment with Bacteriophage. *Arch. Surg.* 1935, 3: 642.

The authors have reviewed the literature on the use of bacteriophage in infectious arthritis and state

that there is considerable disagreement as to the importance of the serum antiphages in patients and animals treated with bacteriophage. They could find no reference in the literature to the production of experimental arthritis in dogs and base this paper on the results obtained in a large number of male dogs of the hound type. A hemolytic strain of *staphylococcus aureus* was used as the infecting agent and suppurative arthritis of the knee joint was produced. Attempts were then made to protect the joint against infection by the use of the bacteriophage.

From these experiments the authors conclude that acute suppurative arthritis may be produced in the dog's knee with the *staphylococcus* and that repeated injections of bacteriophage alone into the normal dog's knee joint may be followed by the formation of a mild acute synovitis. They feel that bacteriophage as the sole means of protecting the joint against a closed suppurative arthritis is useless, and that future research must strive to develop a bacteriophage which will not be inactivated by body fluids or some method of treating the body that will render the body fluids innocuous to the bacteriophage.

PAUL C. COLONNA, M.D.

Pemberton, R. Some Considerations Based on 300 Cases of Arthritis Critically Treated. *J Bone & Joint Surg*, 1935, 17, 879.

In this general outline of the principles of treatment in arthritis, the author emphasizes that the problem must be studied by considering the patient *in toto*, by careful clinical investigation, and by the evaluation of different physiological factors in each case. This usually requires hospitalization.

About 80 per cent of Pemberton's patients had some form of focal infection in spite of the fact that the majority had previously been under medical care and had been examined or treated for focal infection. Pemberton suggests that some of this infection is not primary but may be secondary, as a result of the arthritis or of the conditions producing the arthritis. Wide experience is necessary to evaluate the importance of a given infection in a certain patient. Tonsillar infection may sometimes be treated conservatively with good results. Tonsillar massage is compared with prostatic massage. Strychnine for its tonic effect and mild sedatives are occasionally used. Anodynes and salicylates are seldom employed. Vaccine therapy is used only in refractory cases—from 10 to 15 per cent of the total number. Entirely too many positive statements and classifications are made concerning etiology and treatment of arthritis. Systemic rest is highly important and is usually overlooked. A carefully controlled, well-balanced maintenance diet is beneficial. The results of studies of the alimentary tract in the cases of 500 arthritics will be published in a later article.

Of the 300 patients whose cases are reviewed in this article, 57 per cent were definitely benefited, 32 per cent were greatly benefited, and 6 per cent were cured.

CHESTER C. GUY, M.D.

Haldemann, K. O., and Soto-Hall, R. Injuries to Muscles and Tendons. *J Am M Ass*, 1935, 104, 2319.

Statistics completed by Grassheim on 500 cases show that the muscles and tendons most frequently ruptured are those of the calf group, extensors of the leg, biceps, Achilles tendon, and thumb extensor, in the order given. Other sites of rupture are the supraspinatus, triceps, rectus abdominis, thigh abductors, and finger extensors. Tendons do not rupture, they pull loose at the bone attachments or at the junctions with the muscles.

Rupture of the supraspinatus tendon, which forms the roof of the shoulder joint, may occur as the result of a fall on the outstretched arm. It is followed by immediate and complete loss of the power to initiate abduction. There will be tenderness over the head of the humerus just beyond the tip of the acromion, and the roentgenogram will show the humeral head in a higher position than normal. If loss of function is due only to reflex inhibition of the supraspinatus caused by bursitis, the injection of procaine into the shoulder at the insertion of this tendon will restore the function of this muscle. In chronic cases in which it is uncertain whether a tear of the supraspinatus has occurred, the patient may be placed in bed with extension on the abducted arm for about a week. If function returns under physical therapy, it may be concluded that there has been no tear.

Complete rupture must be repaired by operation. The shoulder is opened through a split-deltoid incision and the acromion sawed through and turned down to expose the supraspinatus tendon. The tendon may then be resutured to its insertion.

Rupture of the long tendon of the biceps muscle was described by Storks in 1843. It is caused by a sudden strong contraction against a counter force. On active flexion of the elbow the muscle appears as a ball in the lower third of the upper arm. In surgical repair the tendon is sutured to the coracoid near the short head if the tear occurred at the glenoid. Rupture near the muscle junction may be sutured with braided silk. Rarely it may be necessary to shorten the tendon and attach it to the head of the humerus. The diagnosis of dislocation of the tendon from the bicipital groove is made by hearing and feeling a snap in the shoulder. The snap is accompanied by pain. If the lesion is recurrent it is best to fix the tendon through a drill hole in the head of the humerus.

Tenderness in the muscles between the mid-thoracic spine and the scapula is suggestive of strain or rupture of fibers of the rhomboid muscle. The treatment should consist of immobilization of the scapula in a posterior-upward position by adhesive plaster followed later by baking and massage.

Rupture of the extensor of a finger or thumb may result in permanent deformity if early immobilization or hyperextension is not carried out.

Complete separation of the quadriceps muscle, evidenced by an anterior tilt of the upper patellar border and a hiatus in the muscle contour, must be repaired by surgical suture. Partial tears will re-

cover if the knee is fixed in complete extension for three or four weeks.

Calf-muscle ruptures usually involve the plantaris ("tennis leg"). The patient experiences a sudden burning pain during exercise. This pain may be accompanied by an audible snap. The treatment consists of immobilization of the ankle in plantar flexion for two or three weeks, followed by physiotherapy.

The Achilles tendon may be torn at the muscle junction as the result of violent exercise such as sprinting. The leg should be put in a plaster cast with the ankle in plantar flexion. If the tear is complete, it should be sutured.

WILLIAM ARTHUR CLARK, M D

Ewing, J.: Fascial Sarcomas and Intermuscular Myxiofibrosarcoma. *Arch Surg* 1935, 32: 507.

Ewing reviews the literature relative to the use of the terms "fascial sarcoma" and "intermuscular myxosarcoma" and points out that the former term at the present time rarely refers to the fibrous, fibromatous, fibrosarcomatous, or parosteal sarcomas which Virchow described. Ewing feels that deep intermuscular tumors with uniform and characteristic gross anatomical changes and a progressive clinical course, usually fatal, are not rare, and that the characteristic intermuscular myxosarcoma sometimes referred to as "fascial sarcoma" is really a variety of liposarcoma. He reviews the theory that these tumors may arise from misplaced islands of perosteum or from muscle, nerve, fascia, or the sheaths of the deep blood vessels, but feels that both comparative histological and embryological characteristics of fat tissues support the view that they are derived from fat tissue.

He points out that there are two types of liposarcoma, one which may be called the adult form, and the other the embryonal form of sarcoma. As these tumors are radio-sensitive, the suggestion is made that the primary treatment of all bulky deep sarcomas of the extremities should be irradiation, external or interstitial or both, as the present surgical mode of attack leaves much to be desired.

PAUL C. COLOMBA, M D

Benétque, J. and Berthe, R.: Rupture and Disinsertions of the Distal Tendon of the Brachial Biceps (Rupture et déinsertions du tendon distal du biceps brachial). *J de chir* 1935, 46: 347.

The authors describe a case of their own and give brief abstracts of cases from the literature.

Their patient was a man of forty-five whose automobile was overturned. His wife fell on his right arm which was holding the wheel. He did not feel any special pain at the elbow but the pain may have been masked by the many cuts that he suffered. When he extricated himself from the wreck he found that he could not flex his forearm, there was an abnormal swelling at the upper third of the right arm, and he had the impression that his biceps was displaced. He was treated at the time for multiple

fractures of the fingers of the left hand and wounds of the right hand, but was told that the injury of the right arm was only a contusion.

The authors saw him five days later. Examination disclosed an ecchymosis at the bend of the elbow and a movable mass the size of an orange with a depression immediately below it in the upper part of the arm. Neither the bicipital cord nor the aponeurotic expansion could be palpated. There was decreased flexion without supination. The patient had difficulty in lifting even a light object such as a glass of water. A diagnosis of low rupture of the biceps was made.

Operation revealed disinsertion of the distal tendon of the biceps with rupture of its aponeurotic expansion. The muscle could be lowered easily. The tendon was sutured to the periosteum of the bicipital tuberosity of the radius, and the arm was immobilized in flexion for forty-five days. Graduated movements of flexion and extension were then begun and the patient was told on discharge not to make any great effort with his right arm for some time. When he was seen nine months later he had returned to his usual work. There was still a limitation of extension of 15 degrees. The biceps contracted normally and the cord could be felt. The disability from the injury was evaluated at 20 per cent.

The first case of low rupture of the biceps was reported in 1835. Only thirty-three cases have been published to date. The condition generally occurs in adults between forty and fifty-five years of age. The youngest patient was a man of twenty-nine. All except one were males. This form of rupture is always caused by a sudden and violent effort consisting of extension of the forearm on the arm, the forearm often being in supination. High ruptures generally occur in arthritic individuals over sixty years of age.

In low rupture or disinsertion there is a hematoma which varies in size depending on the amount of tearing of the aponeurotic sheath. The tendon can be seen inside the sheath lying free and retracted to a varying distance. Above it the fleshy body of the muscle can be seen in a mass in the upper third of the arm. The aponeurotic expansion is short, torn and can be seen as a shining sheet attached to the inner border of the tendon. If the lesion is old the biceps shows atrophy and retraction while the brachialis anticus has undergone compensatory hypertrophy.

The symptoms are characteristic. There is intense pain at the bend of the elbow and sometimes a tearing sensation is noted. A hematoma quickly develops. Physical examination shows decreased power of flexion, and supination is impossible. There is a swelling about the middle of the arm which rises freely on every attempt to contract the biceps. The cord and aponeurotic expansion can no longer be felt at the elbow. The bicipital grooves have disappeared, and below the muscle mass there is a depression where pulsation of the humeral artery is very superficial if it is not masked by hematoma.

The treatment is of course surgical. Perhaps the simplest and best method is suture of the tendon to the periosteum of the bicipital tuberosity. Aquaviva supplemented this by a supporting suture uniting the tendon of the biceps to the brachialis anticus muscle. His patient was immobilized for twelve days and then mobilized progressively. At the end of six months cure was complete. In the authors' case simple direct suture without a supporting suture was used, but the method with a supporting suture is preferred. The use of supporting sutures alone fixing the biceps and its tendon to the brachialis anticus and the mass of the epitrochlear muscles restores the muscle to almost its normal length, and while it does not restore the supinator function of the biceps it restores the force of flexion almost completely so that functional incapacity is reduced to the minimum. AUDREY GOSS MORGAN, M D

Davis, G. G. Fibrosarcoma of the Right Forearm with Extensive Growth into the Cephalic Vein. *Arch Surg*, 1935, 31: 531

Davis reports a case of fibrosarcoma of the forearm with cephalic vein involvement. The history is supplemented with roentgenograms and photographs, and there is a complete review of the literature on primary and secondary tumors of the veins. The author believes that this is the first reported case of fibrosarcoma of the cephalic vein. PAUL C. COLONNA, M D

Sutro, C. J. The Regrowth of Bone at the Proximal End of the Radius Following Resection in This Region. *J Bone & Joint Surg*, 1935, 17: 867

Four cases are described to illustrate the mechanism of new bone formation at the proximal end of the radius following resection of the radial head. Studies of the specimens removed at secondary operations in these cases indicate the formation of new bone from the marrow and periosteum of the stump as well as by metaplasia of contiguous fibrous tissue. This new bone may present both a cortex and medulla and may result in abnormal elongation of the shaft. It is suggested that these complications may be prevented by the use of fascia lata over the stump and the removal of all loose bone, periosteal, and capsular tissue fragments. If an unusually large segment is originally removed, the gap should be filled with a bone graft. CHESTER C. GUY, M D

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Kraus, H. Functional After-Treatment Following Operations on the Knee Joint (Funktionelle Nachbehandlung nach Kniegelenkoperationen). *Wien klin Wchnschr*, 1935, 1: 548

After many operations on joints function remains poor in spite of ideal anatomical healing. This is due to inadequate after-treatment. The disturbances of function following operation on a joint are limitation of motion and loss of strength, both of

which are caused by contracture and atrophy of the muscles. The causes of the contracture are:

- 1 Postoperative immobilization. If a muscle is kept for a long time in an unchanging condition of tension, it becomes inclined to assume this condition permanently.

- 2 Postoperative irritation of the joint. Every stimulus produces a contracture of the related musculature.

- 3 Excessive demands made upon the joint following operation. Every overexercised muscle tends to undergo contracture.

The directions for treatment include:

- 1 Mobilization by active stretching of the shortened muscles.

- 2 Strengthening of the musculature by active exercise. This is indicated to obtain muscular compensation for the destroyed ligamentous function.

- 3 Protection of the joint against overstraining by the prevention of too early weight-bearing.

While physical treatment, such as the use of hot air, massage, and diathermy, may relieve pain in the later quiescent stage, it can never directly overcome a contracture. The author employs heat only when it is indicated for the relief of pain and even then he employs it only with great care as the strong local irritation produced thereby may lead to effusions, irritation, reduction of function, and renewed pain. He has obtained good results in all of his cases with active motion alone and is inclined to limit his use of other physical measures, including passive motion to the older, definitely quiescent cases. His method of massage is similar to that used in an athletic gymnasium. Before the exercises massage is of value to increase the circulation in the muscles, and after the exercises it favors removal of the lymph and products of fatigue.

Kraus always begins with non-weight bearing exercises with the patient first in the supine position and then in the sitting position. The patient is not allowed to stand up and bear weight until later. The exercises are regulated according to the functional condition of the joint. Extensive effusions contra-indicate treatment by exercises. During the period of immobilization adequate exercises to strengthen all of the muscles of the lower extremities must be undertaken.

After the removal of the bandage or cast, edema, limitation of flexion to less than 90 degrees, and limping frequently persist. For these conditions exercises in the supine position are prescribed. In cases with free motion or a residual limp and the ability to bend the extremity beyond an angle of 90 degrees, weight-bearing exercises and walking exercises are prescribed. Even before the termination of treatment the question of capability for work or athletics comes up. This is closely related to the ability to bear weight. A range of movement of from 180 to 60 degrees, adequate restoration of the musculature, and a normal gait are prerequisites. An extremity is fully capable of resuming athletics only when its musculature has been completely restored.

As a rule too little attention is paid to follow-up treatment after members operations. Hot air and massage are not indicated. Patients treated with hot air and massage require, on the average, three times as much time to attain complete restoration and four times as much time to attain the ability to carry on athletic activities as patients not so treated. Three patients who refused hot air treatment recovered very quickly.

In injuries of the crucial ligament the involved joints are usually in very poor condition before operation. To render the operative conditions more favorable proper pre-operative treatment is essential. The purpose of this treatment is strengthening of the entire articulation. After the operation the joint should be adequately immobilized, at first with the Volkman splint and later in a plaster cast. While the limb is in plaster continuous energetic exercises should be carried out. After removal of the plaster adequate mobilization treatment in bed with the aid of the double pulley is necessary in almost every case. The patient should not be allowed to bear weight until the joint has been sufficiently strengthened. When the treatment is continued long enough, muscle atrophy disappears practically completely.

(HILBERG) HARRY A. SALZMAN, M.D.

FRACTURES AND DISLOCATIONS

Giannuzzi, M.: Skeletal Traction by Wire in the Treatment of Malunion of Fractures and Transosseous Epiphyseal Separations (La trazione transossealetica a filo nella cura delle fratture e dei distacchi epifisari traumatici mal consolidati). Chir d'organi di movimento 1935, 21, 9.

The author analyzes a series of twenty-nine malunions treated at the Rizzoli Institute at Bologna by osteotomy at the fracture site followed by Kirschner wire traction as described by Putti. The patients ranged in age from six to fifty-eight years, and the fractures treated included fractures of the supracondylar region of the humerus, of both bones of the forearm, of the wrist, of the upper extremity of the femur, of the femoral shaft, of both bones of the leg, and of the ankle, all with varying degrees of deformity.

The technique used for the lower extremity was that already published by Putti except that in no case was it found necessary to use skeletal counter traction. In the humeral supracondylar fractures the technique described by Carl for fresh fractures in this region was used. In the fractures of the forearm and the wrist, the wires were placed at the end of the operation in the proximal third of the four metacarpals and elastic traction was attached by means of a metal bow set in a plaster cast on the forearm. The osteotomy was done with the guidance of roentgenograms as far as possible through the old fracture line. The fundamental value of the wire traction is that it is unnecessary to risk the dangers of the manipulations of open reduction with its

attendant violence. The criteria for the character and amount of traction are those prescribed by Putti in previous publications. In a few cases traction produced actual distal dislocation of the fragments, but this reduced itself spontaneously and progressively.

Satisfactory reduction was followed by plaster immobilization after the technique described by Putti for fresh fractures. In all cases the wire was left in the plaster for one and a half or two months or until the initial appearance of callus. Following immobilization, physical therapy was used. The results have been satisfactory after a few weeks. Illustrative roentgenograms are included in the article, but no individual case reports.

BARBARA R. STEINER, M.D.

Swaney, H. M., and Lawrence, H.: The Effect of Carbon Arc Radiation on the Healing of Bone. Arch Surg 1935, 31, 375.

Because of the conflicting reports in the literature concerning the correlation of calcium and phosphorus with the healing of fractures and the influence of ultraviolet radiation on bone repair the authors present an experimental study of the subject. Dogs and rats were used as experimental animals.

In the case of the twenty five dogs, in Group A the fibula on one side was broken and after it had healed the one on the other side was similarly broken, the animal being irradiated during the healing of the second fracture. In Group B the procedure was reversed, the animal being irradiated during the healing of the first and not the second fracture. In Group C the two fractures were made not in one but in two animals of similar form and weight. In Group D carbon arc radiation was administered during the healing of both fractures, and in Group E no irradiation was given. In the case of the rats each animal had only one fracture, a group of from seven to twelve animals serving as controls for two irradiated groups of a series. Calcium and inorganic phosphorus determinations were made at varying intervals on the dogs, but not on the rats.

The fractures were produced by open osteotomies performed under aseptic conditions. Sometimes car bones and therapeutic C carbons were used in different series and cases. Roentgenograms served as the criterion of the healing process. For the rats the percentage of fractures healed per group after a certain length of time was ascertained, while for the dogs the total length of the healing process in days was noted. During the periods of healing allowed, 75 per cent of the fibulas irradiated with Schenck carbons, 50 per cent of those irradiated with therapeutic C carbons, and 41.3 per cent of the controls healed. If two periods of very abnormal healing in the experiments on the dogs are omitted, the average healing time for the fractures was three and seven tenths days shorter when the animals were irradiated than when they were not.

Determinations of the calcium and the inorganic phosphorus content of the serum were made for the

dogs at frequent intervals, but no correlation was demonstrable between them or their product and the length of the periods of healing

Tables showing the detailed results of the experiments are included in the paper as are series of roentgenograms
BARBARA B STIMSON, M D

Henderson, M S Results Following Tenosuspension Operations for Habitual Dislocation of the Shoulder *J Bone & Joint Surg*, 1935, 17 978

Because of unsatisfactory results following capsulorrhaphy and Clairmont's muscle-sling operation at the Mayo Clinic, for more than ten years, physicians there have used the tenosuspension operation for recurrent dislocations of the shoulder. Sixty operations for recurrent dislocation of the shoulder have been performed. Twenty-nine of these, done on twenty-seven patients, have been the tenosuspension operation, twenty-six operations to date have been successful in preventing further dislocations, while three did not. Two of the three patients whose operations were unsuccessful have had but one subsequent dislocation and consider themselves much improved. There have been no deaths, infections, or other unfavorable complications. The majority of the patients were males who were in the active period of life.

In fourteen cases more than five years have elapsed since the tenosuspension operation, twelve patients have had no recurrences of the dislocation, and two have had recurrences. More than three years have elapsed since the tenosuspension operation has been done in three other cases, one of these patients has had recurrence of the dislocation. In five cases more than eighteen months have elapsed since the tenosuspension operation and none of the patients, so far, has had any recurrence. In seven cases less than eighteen months have elapsed since the operation was performed and no recurrences have occurred.

Magnuson, P B, and Stack, J K Obtaining Union in Ununited Fractures of the Humerus *J Bone & Joint Surg*, 1935, 17 887

The authors feel that in fractures of the humeral shaft the tendency for displacement of both fragments toward constant angulation and the lack of weight-bearing strain on the bone are two factors that are largely responsible for the occurrence of non-union. In many cases it is impossible to obtain adequate immobilization by cast or brace because of the constant muscle effort tending to pull the fragments out of position. They present six cases varying in time of duration from one to five years and in patients whose ages ranged from twenty six to sixty-nine years. In two of the cases permanent non-union followed a bone-graft operation and in three there was firm bony union in less than three months following a wedge type of operation. In the sixth case a large bone graft was used because of great loss of bony substance following an extensive compound fracture.

The authors' method is to cut a long V in the lower end of the upper fragment, to trim the lower fragment carefully to fit into the V and to hold it there by means of wire or ivory screws. A firm contact between the fragments is obtained with no tendency to angulation. They believe it to be important to fit the fragments very carefully together. Full case reports and roentgenograms are presented.

BARBARA B STIMSON, M D

Vohnout, C Treatment of Injuries of the Carpal Bones (Behandlung der Verletzungen der Handwurzelknochen) *Közl. Chir. u. Gynæk. Chir.*, 1935, 14 124

At Petrivalski's clinic thirty-six cases of wrist-joint injuries were observed. Twenty-four were operated on. From a review of the results of the treatment of injuries to the carpal bones and the assumption of an accident as the exclusive etiological factor for an aseptic necrosis the author concluded that extirpation could not be recommended exclusively. The operative results in injuries to the os navicular are better following conservative treatment. He obtained good clinical results in dislocations of the lunate by closed reduction or removal. In aseptic necrosis of the semilunar where in all cases removal was done poor results outweighed the good. Roentgenograms showed severe arthritic changes in all patients. In only two, where there was a question of aseptic necrosis of the semilunar, very slight changes occurred which did not affect the end-result. The results which were obtained in the treatment of carpal bone injuries justify strict individual judgment of each case and a cautious decision between conservative and operative treatment.

(HAY) BARBARA B STIMSON, M D

Conway, F M Fractures of the Pelvis *Int. J. Surg.*, 1935, 30 69

The author presents a review of fifty-six cases of injuries to the pelvic ring. There were thirty female patients and twenty-six males. The ages ranged from seven to eighty-one. Falls or jumps from a height accounted for 46.4 per cent of the injuries, automobile accidents for 41.0 per cent. There were seventeen fractures of the ilium, six of these being associated with fractures of the pubis, thirteen fractures of the ischium, twelve being associated with other fractures of the pelvis, forty-two fractures of the pubic bones, two of the sacrum, and four involving the acetabulum. There were four cases of visceral complications all associated with pubic fractures. In more than 44 per cent of the cases there were also fractures of other bones. In twenty-four cases abdominal signs of pain, tenderness, and increased muscle spasm due to retroperitoneal hemorrhage were present.

Five exploratory laparotomies were done, and the author discusses the need for accurate diagnosis in the presence of multiple injuries. He feels that abdominal puncture as an aid to the diagnosis of intra-abdominal injury has proved of inestimable value in

positive cases. He also suggests the direct instillation of some non-irritating radiopaque substance into the bladder with subsequent immediate roentgenography of the pelvic area. Leakage from the bladder is immediately detectable. Intravenous urography may be similarly employed if there has been no temporary cessation of renal function due to shock.

There were thirteen deaths in the fifty-six cases, nine within twenty-four hours after admission to the hospital. Treatment of the surviving cases consisted of stabilizing the pelvic girdle by means of extension traction on the lower extremities and of reducing the lateral pelvic distortion by some form of pelvic sling. Russell traction was used with success on one case of complete disruption of the sacro-iliac joint. The final results in those cases which were reached by Conway's follow-up system were disappointing, backache being the principal complaint in those questioned.

The article is accompanied by illustrative tables and roentgenograms. **BARBARA B. STENOR, M.D.**

Pasquati E.: Reconstruction of the Acetabular Roof in Congenital Subluxation of the Hip (La ricostruzione del tetto cotilideo nelle sub-lussazioni congenite dell'anca). *Chir. e Organi di movimento*, 1935 1: 149

This is a report of operations on forty-nine patients in which the acetabular roof was used in the reconstruction after reduction of hip dislocation. The technique of the operation is described briefly. The operation has proved successful. The new roof made from the ilium creates an effective barrier to progressive rise of the femoral epiphysis. The case reports are supplemented with roentgenograms.

A. LOUIS ROSE, M.D.

Boehler L.: The Results of the Treatment of Fractures of the Femur (Behandlungsergebnisse der Oberschenkelbrüche). *Arch. orthop. Chir.* 1935, 33: 466

Results of fractures of the femur are

1. Death without local infection as a result of bleeding from the femoral artery (very rare) from fat emboli (Boesch, 11 deaths in 223 cases) from pulmonary emboli (rare)

2. Death from infection following compound fractures after operation on closed fractures (Carlson, 30 osteomyelitis, 5 infections, of which 2 were fatal), from infection from clamp, nail, or wire traction (Scheffer 40 cases, 1 death; Koenig 70 cases, 1 death)

3. Loss of the limb from damage to the femoral artery (immediate amputation) from amputation for infection from gangrene following injury, from thrombosis of the femoral artery (amputation a single patient died as a result of thrombosis and associated gangrene although primary wound healing of the compound fracture took place)

4. Local infection of the fracture site frequently in compound fractures where no primary débride-

ment and care are undertaken also not so rarely after operations on closed fractures also spreading from clamp and wire sites.

5. Non-union. This occurs most frequently following compound fractures or following infection after operations on closed fractures or after improper traction of from 15 to 20 kgm. for several weeks (Krabbel, 4 non-unions in 290 cases; Boesch, 5 in 223)

6. Faulty union. Shortening has diminished with the modernization of treatment in the course of the last forty years. The average shortening in cases treated by Boehler is from 0.2 to 0.3 cm. In gunshot fractures, 0.3 cm. It is to be noted whether the shortening is measured at the time of discharge from treatment or later. Late shortening is common. Bending at the fracture site varies; deformity is the region of the hip, and valgus displacement and recurvatum in the region of the knee produce the greatest disturbance. Torsion causes severe derangement.

7. Joint difficulties in the injured extremity. The hip joint is most often injured by fractures in the neighborhood of the trochanter. Knee joints frequently injured (Lilinger 66 per cent; Boesch, 30 per cent; Boehler in 14 cases—0 times free, once able to bend less than 90 degrees). Relaxation of the joint, effusion, thickening, arthrosis are observed. Ankle joint rarely injured (Krabbel, 2 per cent). In compound fractures pes equinus and claw position of the toes were frequently seen. Through suitable manipulation of the foot these deformities can always be avoided.

8. Joint injuries of the undamaged limb come about through inequality due to shortening of the injured limb (valgus deformity relaxation of the knee joint, flat-foot)

9. Nerve injuries. These are observed only in compound fractures. Boehler has not seen sciatica after fractures of the femur. Peroneal and tibial palsy occur from too strong a pull (from 18 to 25 kgm.)

10. Venous thrombosis. Ischemic contracture observed once by Boehler in a patient who was treated with skin traction on the lower leg with the knee in extension. Edema appears in slight degree after each femoral fracture.

11. Muscle atrophy (Lilinger 34 per cent; Luxembourg, 10 per cent). The observation of muscle atrophy by tape measure alone is not reliable for in the first months the injured extremity can even be in good position be thicker than the good limb through swelling alone, and where there is shortening it can remain thicker longer on account of the overlapping of the fracture ends and because of the large amount of callus. The measurement is of value only if it changes suitably in investigation over great periods. One can state the conditions of the muscle much better through observing the corresponding motion of it with the naked eye and feeling the hardness of it. Muscle atrophy is always on hand in the beginning.

12 Pressure sores after plaster-of-Paris and adhesive plaster bands Boehler has never seen them in his material. Nineteen cases treated outside were compared to 15 investigated by Boehler in the "Unfallkrankenhaus" All were examined from a uniform point of view and in each, he records the age, type of work, original cause, associated injuries and illnesses, kind and duration of treatment, duration of hospital stay and of inability to work, site of the fracture, position of the fragments (for which all injuries were roentgen-rayed), shortening, motion of the joints (hip, knee, ankle, foot, and toes), condition of the muscles, nerves, and vessels, subjective symptoms, compensation, daily wages before the accident and at the return to work and after two, three, four, six, and seven years, photographs

After seven years 11 of Boehler's patients received no more compensation, 1, 35 per cent (had also fractures of shoulder and base of skull), 1, 33½ per cent, 1, 35 per cent, 1, 40 per cent The compensation status at the conclusion of treatment was 0 per cent, 1, 10 per cent, 2, 25 per cent, 1, 30 per cent, 2, 33½ per cent, 3, 50 per cent, 3, 65 per cent, 1, 75 per cent, 1 (also with fractures of shoulder and the base of the skull) The healing time is much longer in older patients than in younger Also in the motion of the joints after treatment the age plays a deciding part The patients treated elsewhere received after seven years 0 per cent, 9, 25 per cent, 2, 30 per cent, 1, 33½ per cent, 2, 50 per cent, 1, 66 per cent, 1, 70 per cent, 1, 75 per cent, 1 The hospital stay in the cases treated by the author was on an average one hundred seventeen days because all patients were kept until they could walk well without a cane In the cases treated elsewhere it was only sixty-nine days because most of them were allowed to go home in plaster casts

The best results were obtained by fixed traction, particularly if the pull in the first weeks was directly on the bone One can by that means always overcome shortening, angulation, and distortion, and the motion of the joints is much better than in plaster casts Infection at the site of nail or clamp was not observed in the 32 cases Therefore there were no nail-hole sinuses and, from these, progressing infections and deaths In his own cases the extremity was always placed on a Braun splint, the nail driven through the tibial tuberosity and removed after three or four weeks, after which an "Unna's paste" extension bandage was applied No deaths from fat emboli occurred. This should be due in part to the fact that no forcible manipulations were done. No deaths occurred from pulmonary emboli nor pneumonia This is accounted for because the patients were free from pain after the

second day following good position and could move themselves well and expectorate and because from the first day systematic active motions of toe, ankle, and hip joints were made The patients were particularly free from pain because traction not more than a seventh part of the body weight was applied For a body weight of 70 kgm a traction weight of 10 kgm was used If heavier weights are used, which are increased to 20 kgm, great pain is caused by the over-stretching of the nerves, the patients cannot sleep nor eat. In Boehler's cases a weight was commonly specified that amounted occasionally to 15 kgm

Death through infection after compound fractures did not occur because the wounds were immediately débrided and then sutured so that they healed like closed fractures Death from infection after operation on closed fractures did not occur because all cases were handled conservatively Gangrene of the extremity never occurred. Local infections through suppuration of compound fractures or at nail or clamp sites were not observed Non-unions, which are seen after infection or strong traction, did not occur The worst results in 32 investigations occurred in those cases which were kept quiet too short a time, especially 1 case which showed a shortening of 7 cm with marked angulation and distortion The greatest complaints arose in cases where in addition to the shortening and angulation, the fragments were twisted against each other, especially in inward rotation and coxa vara of the same side In plaster casts, late shortening occurred in most cases and limitation of knee motion Pterochantheric fractures in plaster casts always healed with poor results because they were not satisfactorily corrected and then were immobilized too short a time These fractures were never healed sufficiently before ten weeks to be completely able to bear weight. Frequently they needed from twelve to fourteen weeks If pterochantheric fractures are treated in plaster with strong internal rotation, as in medial fractures of the neck of the femur, the fragments will heal rotated on each other Shortening of an equal amount when caused by angulation causes far greater symptoms than if the bones are in good axis and lie parallel and overriding If the motion in the knee joint is limited, the usefulness depends not so much on the extent of the range of motion as on the complete extension Severe symptoms also arise from over-extension Joint relaxation did not occur because the shortening in most cases was slight and because the pull peripheral to the knee joint lasted not longer than three or four weeks Vessel and nerve injuries were not seen.

(HELLNER) BARBARA B STIMSON, M.D

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Scott, W. J. M.: Arterial Spasm in the Extremities.
Am Surg 9:55, 1903 332

The author states that while the element of spasm in peripheral arterial disease has long been known, its importance has been recognized only recently. All investigators who have made a careful study of the circulation have realized that a purely mechanical explanation of it is inadequate. Even as early as the eighteenth century the presence of nerve filaments extending to the arteries had been recognized for a long time and an action of these fibers in constricting the arteries was assumed. In 1831 Bernard demonstrated the vasomotor control of the peripheral circulation by sympathetic nerves. With the re-awakening of our interest in the sympathetic nervous system since the war, methods for the clinical study of vasomotor phenomena have been developed. The data obtained have necessitated a complete revision of our conception of the peripheral circulation as merely a mechanical hydraulic system. In addition to its occurrence in Raynaud's disease, arterial spasm is often a critical factor in the common organic arterial diseases. It is a frequent accompaniment of nerve irritation whether in the peripheral nerves or in the central nervous system, and it is an important sequel of trauma.

The author believes that recognition of the element of spasm in organic arterial disease is of great importance as the relief of spasm improves the collateral circulation. The best method of relieving spasm remains somewhat in doubt. The treatment of arterial spasm superimposed upon organic vascular disease must still be determined according to the requirements of the individual case. The author believes that in carefully selected cases lumbar ganglionectomy is followed by the most complete and lasting vasodilatation of the collateral circulation.

The classical example of arterial spasm is the spasm occurring in Raynaud's disease. The paroxysmal nature of the attacks in the absence of evidence of organic arterial disease makes the diagnosis of definite cases of this malady relatively simple if no cause for vasomotor irritation can be found.

In most cases of Raynaud's disease seen in the author's clinic the condition is not sufficiently severe to warrant the urging of a major operation. The patients are inconvenienced by the attacks, but when they protect themselves from the cold they are able to live a fairly normal life. When treatment by reflex hyperemia following hypercooling of the extremity is insufficient and when the sensory acuity or the nutrition of the fingertips is threatened, the author advises dorsal ganglionectomy after prov-

ing that temporary deservation improves the circulation.

Scott has found that many organic diseases of the central nervous system associated with irritation or scar tissue formation may have as outstanding vasomotor component. This phenomenon also is seen as a localized condition in functional nervous disorders. Irritation of the peripheral nerves or their roots such as occurs with cervical ribs, neuralgia, or neuroma formation may be associated with marked angiospasm. There are records of cases in which the vasomotor irritation from a cervical rib has resulted in thrombosis of the radial and brachial arteries with maintenance of circulation in the subclavian and axillary arteries. Aside from distant vascular effects associated with peripheral nerve irritation from pressure or scar-tissue involvement, the vasomotor neuroses secondary to other nervous disorders do not ordinarily cause serious symptoms and rarely will require treatment.

There are two main types of angiospasm consecutive to trauma. One is paroxysmal angiospasm which, in its symptoms, closely resembles a local Raynaud condition with painful ischemic attacks, particularly on exposure to cold. The treatment of this type is similar to that of Raynaud's disease. The other is painful osteoporosis or reflex traumatic arthritis. Some have ascribed the bone changes entirely to vasodilatation in the bones. However, vasodilatation achieved by removing the vasomotor stricture fails to produce such bone changes. The cause of the bone changes and of the pain is not clear but apparently has a vascular basis. The author believes that in the more severe degrees of the condition sympathetic ganglionectomy is the most satisfactory treatment as he has achieved temporary relief of pain by anesthetizing the lumbar sympathetic cord. In lesser degrees of the condition, conservation is justifiable as fairly complete recovery usually results. HENRIET F. THURGOOD, M.D.

Ljunggren, E.: The So-Called Traumatic Venous Thrombosis of the Upper Extremity (*Über das sogenannte traumatische Venenthrombosen der oberen Extremität*). Acta Chirg Scand 1915, 77 117

The author reports a case of so-called traumatic thrombosis of the vena axillaris subclavia. The patient was a man twenty-four years of age whose symptoms began after strenuous work at a saw mill. The clinical picture was characterized by swelling and cyanotic discoloration of the right arm, distention of the veins on neighboring parts of the chest, and a sensation of paralyzing weight in the arm.

As four months after the beginning of the symptoms the patient was still unable to work, operation was performed. The vein was exposed and freed

strands found constricting it were divided. No signs of thrombosis were observed. Eighteen months after the operation the patient resumed his work. He is now free from symptoms, but his right arm is still thicker than his left and dilated veins are seen on neighboring parts of the chest.

The author believes that in this case the pathological process was materially shortened by the operation. He therefore suggests that in similar cases in which recovery is protracted the hindrance to emptying of the vein be removed surgically. He regards it as probable that in the majority of the cases reported in the literature as cases of traumatic thrombosis of the upper extremity the condition was due to other causes such as fascial strands constricting the vein or glands which gradually impeded the outflow through the vein.

Roentgenograms made of the vein before and after the operation in the author's case are included in the article.

Middleton, W. S., and McCarter, J. C. The Diagnosis of Periarthritis Nodosa. *Am J M Sc*, 1935, 190, 291.

Rokitansky is credited with the first pathological description of periarthritis nodosa. Although over 200 cases have been reported in the literature, a diagnosis during life is still unusual. From the accumulated knowledge regarding the pathological sequences and clinical pictures of this affection the authors conclude that a more orderly approach to the problem should facilitate recognition of the condition during life. They believe that the incidence of the disease probably greatly exceeds the frequency of its clinical and pathological recognition.

They report 3 cases, describing in detail the findings of gross anatomical and microscopical examinations of the pathological tissues. The pathological changes consist of a necrotizing arteritis, subacute and chronic cellular and fibrinous exudation, aneurysm formation, thrombosis, and fibroblastic proliferation and repair. The smaller arteries and arterioles are affected, and degeneration and infarction in the areas of supply are common.

The cause of periarthritis nodosa is unknown. Earlier writers often mentioned syphilis as the etiological background, but since the development of the Wassermann test and modern methods of treatment, the treponema pallidum has been proved to have no relationship to the disease. Mechanical causes and parasites have been ruled out as etiological agents, and the presence of streptococcal septicemia has been disproved by repeatedly negative blood cultures. The authors believe that periarthritis nodosa is closely associated with the "rheumatic group" of diseases.

The tetrad of Meyer and Brinkmann, chlorotic marasmus, polyneuritis, and polymyositis, striking abdominal manifestations (cramps, vomiting, diarrhea, melena, and perforation) and nephritis, offers a logical foundation for the clinical diagnosis of periarthritis nodosa. An unexplained fever, poly-

myositis, and eosinophilia are particularly suggestive of the condition. Whenever the disease is suspected, biopsy of accessible nodules or voluntary muscle should be done.

In conclusion the authors state that further study may render ophthalmoscopy, electrocardiography, and pulmonary roentgenography of greater aid in the diagnosis of periarthritis nodosa.

HERBERT F. THURSTON, M.D.

Bernstein, A. Periarthritis Nodosa Without Peripheral Nodules Diagnosed Ante Mortem. *Am J M Sc*, 1935, 190, 317.

The various clinical types of periarthritis nodosa have been described frequently, but ante mortem diagnoses have been exceedingly rare and most of those made were the result of a biopsy performed to establish the suspected presence of some other disease such as trichiniasis or dermatomyositis. In only an occasional case has the condition been recognized at operation from the finding of nodules in the abdominal cavity or by microscopic examination of the excised organ.

The author reports in detail the findings in a fatal case of periarthritis nodosa without peripheral nodules which was suspected before death and demonstrated at autopsy. The illness was characterized by weakness, emaciation, fever, peripheral neuritis, slight abdominal pain, edema, occlusion of the central retinal artery, anemia with leucocytosis and eosinophilia, and changes in the urine. The Wassermann reaction was positive. Potassium iodide failed to arrest the course of the disease.

Brief mention is made of six cases of periarthritis nodosa recorded in the files of the Johns Hopkins Hospital, Baltimore. In one of these the diagnosis was made at autopsy and in another at laparotomy. The four others were recognized by searching through the autopsy material of the Department of Pathology.

HERBERT F. THURSTON, M.D.

BLOOD, TRANSFUSION

Herrmann, L. G. Non-Operative Treatment of Inadequate Peripheral Distribution of Blood. Passive Vascular Exercises and Local Hyperthermia. *J Am M Ass*, 1935, 105, 1256.

In general, the peripheral distribution of arterial blood is influenced by

- 1 The physical state of the intravascular fluid (a) quantity, (b) pressure, (c) viscosity.
- 2 The physical state of the peripheral arteries (a) abnormal spasm, (b) rigidity, (c) compression, (d) obliteration.
- 3 The physical factors in the environment (a) atmospheric pressure, (b) temperature, (c) radiation (light).

In clinical practice, Herrmann and associates have considered that all deficiencies of peripheral arterial circulation can be explained on the basis of some combination of the four major disturbances affecting the physiology of peripheral arteries, namely, major

arterial spasm, arteriolar spasm, major arterial occlusion, and arteriolar occlusion. Differentiation between these types can be made under controlled conditions of temperature and humidity by oscillometric and calorimetric studies before and after complete vasomotor relaxation.

The treatment of deficiencies of peripheral circulation is extremely difficult and may tax to the utmost the ingenuity of the physician or the surgeon. In general, it may be said that all therapy for these disturbances should be directed toward (1) the prevention of infection of the poorly nourished tissues, (2) re-establishment of an adequate collateral arterial circulation, and (3) relief of pain.

The frequency and length of treatment should depend on the urgency of the condition treated. Acute arterial occlusion should be treated by operation. Trauma, thrombosis, and embolism must be considered surgical emergencies and treated intensively until adequate circulation has been permanently re-established. For patients who are hospitalized, the number of hours of treatment varies from five to seven daily. Ambulatory patients and patients with less urgent conditions receive from twelve to twenty hours of treatment each week.

This report is based on clinical data collected over a period of two years and nine months. Arteriographic studies on patients treated by passive vascular exercises showed an enormous increase in the size and number of useful collateral arteries in the distal parts of the extremity which had been treated intensively. Pulses became palpable in the genicular arteries of patients whose circulatory insufficiency was due to obliteration of the major arteries of the lower leg. Repeated calorimetric and oscillometric studies have demonstrated conclusively that the collateral circulation brought about by this mechanical means remains active and in many patients continues to become more active for many months after discontinuance of the Pavlov treatment. Experience has shown that passive vascular exercise for approximately one hundred hours given at the rate

of at least five hours each day is sufficient to permit the development of an adequate collateral arterial circulation in most patients with obliteration of the major or secondary arteries of an extremity when the arteriolar network is relatively normal.

During the past year the author has been combining the effects of passive vascular exercises with various degrees of local hyperthermia. The clinical results have been encouraging, especially in patients with moist gangrene of one or more toes or a large indolent ulcer on an extremity.

More than fifty thousand hours of passive vascular exercise treatment have been given to several hundred patients with serious and extensive arterial diseases of the extremities.

The most striking clinical benefits will be observed in patients with sudden obliteration of the major arterial pathways by trauma or disease. The least striking effects are to be expected in patients with extensive arteriolar obliteration in the distal parts of the extremities.

Passive vascular exercises have been shown to be an effective means of overcoming the vascular insufficiency in the distal portions of an extremity after acute occlusion of the major arterial pathway has resulted from arterial embolism, arterial thrombosis, ligation of major arteries, or surgical incision of aneurysmal (syphilitic) sacs with ligation of the incoming and outgoing artery. Frozen feet of all degrees have responded promptly and the serious sequelae of extensive thermal trauma have been prevented in all cases treated by this method in the author's clinics.

Acute or subacute thrombophlebitis must be considered a definite contra-indication to passive vascular exercises. Extensive obliteration of the arteriolar bed due either to the late stages of thromboangiitis obliterans or to extensive arteriolar sclerosis should be considered a contra-indication since little or no lasting benefit has been obtained from the therapy. Varicose veins are not affected by passive vascular exercises.

CARL R. STREETER, M.D.

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE, POSTOPERATIVE TREATMENT

Petterson, G. Some Remarks on the Indications for Trendelenburg's Operation in Reference to an Operated Case. *Acta chirurg Scand*, 1935, 77 163

The author reports a case in which embolectomy by the Trendelenburg method was done and the patient survived the operation by four and a half hours. The cause of death was probably pneumothorax due to a fresh embolus. After reporting this case Petterson discusses the indications for the operation described.

Ottenheimer, E. J. Postoperative Gas Pains. *New England J Med*, 1935, 213 608

Postoperative gas pains represent, unquestionably, the most common complication of major surgical procedures. Yet their importance does not seem to be universally appreciated, nor have they been accorded the thoughtful consideration which their frequency and significance warrant. This may be explained by the fact that they are seldom serious in their consequences and are usually transitory, rarely lasting beyond the fifth postoperative day. Nevertheless, few surgeons will deny the sense of relief which accompanies the termination of the gas period and all will admit that this period is, disturbingly often, the patient's most unpleasant remembrance of his surgical experience.

The variability in the development of gas pains has caused considerable speculation regarding the factors which may play a rôle in the production of such pains. Some of the theories advanced have been based on the findings of laboratory experimentation as well as clinical observations, whereas others have been based merely on impressions gained from individual experiences. Among the most widely recognized factors are the pre-operative régime, the length of pre-operative hospitalization, the type of patient, the anesthesia, the duration of operation, the site of the operation, the amount of trauma at operation, and the postoperative régime.

The author reports a study of postoperative gas pains which he undertook to determine the relative importance of these factors. As the hospital in which the study was made has no internes, he made personal bi-daily visits and observations. Of 400 consecutive patients subjected to major operations, 236 (59 per cent) had gas pains. From his findings Ottenheimer draws the following conclusions:

1 Gas pains are just as common in men as in women.

2 They occur most frequently in patients between the ages of twenty and fifty years.

3 They are just as apt to occur after spinal anesthesia as after inhalation anesthesia.

4 Long operations tend to increase the incidence of severe gas pains.

5 Gas pains are only slightly more common after operations on the upper part of the abdomen than after operations on the lower part.

6 Gas pains are not infrequent following hernia operations.

7 Long pre-operative hospitalization does not reduce the incidence of gas pains.

8 Manipulative trauma plays an important rôle in the production of gas pains.

9 The nervous type of patient is much more likely to have gas pains than the patient of the phlegmatic type.

10 Gas pains can be greatly reduced by withholding fluids by mouth for from twenty-four to forty-eight hours after laparotomy.

11 Routine postoperative treatment should be abandoned. If the surgeon is aware of the relative importance of the various factors contributing to gas pains, it may be possible for him so to individualize his postoperative treatment as to reduce the incidence of such pains to the minimum.

J. THORNWELL WITHERSPOON, M.D.

Milbert, A. H. A Study of Disruptions of Abdominal Wounds. *Arch Surg*, 1935, 31 86

Milbert reviewed 1,560 laparotomies exclusive of inguinal and femoral herniotomies, to determine the incidence of disruption of abdominal wounds. He found 20 cases of partial or complete separation of the abdominal wall. Exclusive of the cases in which appendectomy was done, such separation was most frequent in persons in the fourth, fifth, and sixth decades of life. It was about 6 times more frequent in males than in females. Its incidence was especially high in cases of chronic infection and cases of malignancy with cachexia and anemia.

Disruption occurred in 13 of 390 incisions in the right upper quadrant of the abdomen and the epigastrium, 3 of 501 incisions in the hypogastric region, 3 of 49 low left rectus incisions, 1 of 69 para-umbilical incisions, and none of 6 subcostal incisions and 545 incisions in the right lower quadrant of the abdomen. Except for minor variations, the closure of the laparotomy wound was the same in all cases. Catgut was used except for the skin.

Of the 20 cases of disruption, drainage was established in 9. Postoperatively, 13 of the wounds were clinically clean, 4 were grossly infected, and 3 were exposed to drainage from the biliary tract. In all of the cases of disruption the operation was performed under anesthesia induced with nitrous oxide and oxygen followed by ether.

The diagnosis may be difficult because the disruption may occur insidiously. In the cases reviewed it occurred in a stormy postoperative course with severe pain. There was no appreciable increase in the temperature or pulse rate. The mortality was 55 per cent. The author briefly describes the closure of disrupted wounds.

He reports also an epidemic of 6 cases of wound rupture occurring in a period of two weeks which were attributed to a batch of faulty catgut.

He then analyzes the healing of typical laparotomy wounds with reference to the reaction caused by catgut, and cautions against the frequent failure of suture material to hold beyond the point of safe healing for the wound.

He emphasizes the importance of intra-abdominal pressure as a causative factor in wound disruption, especially the constant or explosive type of increased intra-abdominal pressure which is associated with coughing.

He concludes that dehydration, malnutrition, and obesity favor the disruption of wounds and emphasizes the importance at operation of strict asepsis, limitation of tissue trauma to the minimum, and accurate approximation of the severed tissues. He states that the anesthesia must give sufficient relaxation of the muscles to permit good closure. Abdominal binders should be used as their benefits outweigh their disadvantages. After operation, restlessness, distention, and coughing must be combated and the sutures left in place until the wound is well healed.

HARVEY S. ALLEN, M.D.

ANTISEPTIC SURGERY; TREATMENT OF WOUNDS AND INFECTIONS

Gunn, J., and Hillsman, J. A.: Thermal Burns. *Ann Surg* 1935, 1: 3-49.

The authors interpret the phenomena associated with severe burns as a sequence of physiological and biochemical changes occurring in an orderly manner. They attempt to reconcile various theories regarding the cause of the symptoms of burns.

A thermal burn is followed first by pain and fright which may induce reflex shock. This occurs within the first twelve hours. Coincidentally there is an increase in capillary permeability with loss of fluid. The latter begins immediately, reaches its peak in twenty-four hours, and remains stationary for twenty-four hours. The fluid is then slowly reabsorbed. At the same time bacterial contamination occurs. This may become active infection within from thirty-six to forty-eight hours and induce toxic symptoms. If the three-toxin theory is correct, the liberation of the toxins in the burned area must occur with the onset of the loss of fluid.

The authors discuss the pathological changes and complications of burns and outline a system of treatment which is based on the assumption that any or all of the various theories may be correct.

STANLEY J. SINGER, M.D.

Harkins, H. M.: The Bleeding Volume in Severe Burns. *Ann Surg* 1935, 101: 444.

In six burned dogs which were bled after the mean arterial blood pressure had fallen from an average of 135 to 58 (a drop of 75 mm. of mercury) the bleeding volume was 16.3 per cent of the calculated blood volume. At the same time the animals showed a fluid shift to the burned side of 2.1 per cent of the body weight. The hemoglobin percentage rose from an average of 106 to 136 and the hematocrit reading from 50 to 66.

In a second series of five burned animals the bleeding volume after the mean arterial blood pressure had fallen from an average of 141 to 113 (a drop of 28 mm. of mercury) was 31.4 per cent of the calculated blood volume. At the same time these animals showed a fluid shift to the burned side of 3.0 per cent of the body weight. The hemoglobin percentage rose from an average of 103 to 140, and the hematocrit reading from 48 to 67.

In four anesthetized control animals the bleeding volume averaged 33.4 per cent of the calculated blood volume and the changes in the blood pressure, fluid shift, hemoglobin percentage, and hematocrit reading were all much less than in the burned animals.

These results indicate that the bleeding volume decreases more rapidly and its rate of change is more closely related to the cardiac output, blood concentration, and local fluid accumulation than the blood pressure. The average bleeding volume following burns was smaller to that noted by others is due to trauma to an extremity, hemorrhage, plasmapheresis, or intestinal manipulation in which the chief factor is a decrease in the blood volume.

The changes in the bleeding volume reported by the author are added evidence that the blood concentration, local fluid accumulation, blood volume (as evidenced by the bleeding volume) and the cardiac output indicate the course of a burn more accurately than the blood pressure which collapses only as death approaches. This suggests that clinically any of these factors may be of more importance in the diagnosis and prognosis than the blood pressure. In clinical cases of burns the local fluid accumulation, blood volume (most certainly the bleeding volume) and cardiac output are difficult to determine but the hemoglobin percentage and hematocrit reading are easy to obtain and should be taken into consideration more often in the diagnosis and the determination of the prognosis of burn shock. For these purposes Underhill uses especially the hemoglobin percentage.

STANLEY J. SINGER, M.D.

Gruckshank, R.: The Bacterial Infection of Burns. *J. Path. & Bacteriol* 1935, 4: 367.

Bacterial infection is a common sequel of severe burns. The principal infecting organism is the streptococcus hemolyticus. The author believes that the high incidence of infection by this organism is probably favored by the congregation of patients in wards as he discovered hemolytic streptococci in

the throats of patients more frequently during their first week in the hospital than at the time of their admission they were numerous in the atmosphere and dust of the wards in which burns were treated, and streptococcal tonsillitis and streptococcus carriers were frequently found among the nursing staff. However, large abraded areas deprived of their protective epithelial covering tended naturally to become infected with the streptococcus hemolyticus as burns treated at home were found to be so infected at the time of the patients' admission to the hospital. Similar findings were reported by Aldrich in 1933.

The theory that secondary shock in burns is associated with the absorption of cleavage products of protein from the burned area has been largely disproved (Underwood, 1930). It is more probable that the toxemia and fever manifested after the second or third day are due to septic infection of the burned surface. Treatment with tannic acid which, it was claimed, "fixed" the toxic bodies does not by itself prevent or control bacterial infection to any extent (Wilson, 1929, Donald, 1930, Clark and Cruickshank, 1935). It is therefore suggested that, in addition to general treatment of the burns, local measures designed to deal more effectively with the problem of bacterial infection, e.g., the application of such antiseptics as the flavines (Graham, 1925, Brown, 1934) or gentian violet (Aldrich, 1933) be given an extensive trial.

FRANK J. SERGEY, M.D.

Kunz, H. Should Serum Prophylaxis against Tetanus Be Used in Every Open Injury? (Soll bei jeder offenen Verletzung die Serumprophylaxe gegen Wundstarrkrampf durchgeführt werden?) *Wien med. Wchnschr.*, 1935, 1: 713.

Serum prophylaxis is used almost everywhere today for all injuries in which there is a possibility of tetanus infection. On the other hand, excessive use of serum is strongly discouraged because of the danger of serum sickness or anaphylactic shock. It is therefore necessary to reach some definite rules. Tetanus does not occur with equal frequency in all regions, in Austria, for instance, it is very frequent in Styria and lower Austria, but quite rare in Vorarlberg and Salzburg. On the average, 122 people die annually from tetanus in Austria. This rate is very high—only the deaths from diphtheria, puerperal fever, and typhoid exceed those from tetanus. Tetanus is therefore not an infrequent wound complication. There is particular danger of tetanus in injuries which are soiled with cultivated garden or field earth, as well as with street dirt, also in farm injuries, wooden-splinter wounds, bites, burns, and freezings. In industrial accidents, on the contrary, the danger of tetanus is slighter.

General wound prophylaxis is also important in preventing tetanus. If thorough wound excision can be done immediately after the injury, serum prophylaxis may be omitted, except in those accidents carrying the greatest danger of tetanus. Serum should be administered in all gun-shot wounds. The opponents of serum prophylaxis always raise the

objection that the prophylactic serum does not provide absolute protection against the disease. However, this is always due to some particular reason, such as the delayed administration of antitoxin, inadequate dosage, or using old serum. Therefore such cases cannot, in any way, be cited as reasons for not attempting serum prophylaxis. As to the danger of prophylactic serum, serum sickness occurs in about 10 per cent of the cases, and is of a harmless nature as a rule. However, actual fatalities have occurred from anaphylactic shock, although they are extremely rare, furthermore, they may be prevented by the use of certain precautionary measures. Serum prophylaxis can certainly be limited, and should not be used indiscriminately. Nevertheless, its excessive use will cause less injury than inadequate employment.

(MAXIMILIAN HIRSCH) LEO M. ZIMMERMAN, M.D.

Lavender, H. J., and Goldman, L. Facial Erysipelas: Evaluation and Comparison of Specific Antiserum and Ultraviolet Therapy. *J. Am. Med. Ass.*, 1935, 105: 401.

This report is based on ninety cases of facial erysipelas in adults in which no operation had been done. Seventy of the patients were whites and sixty-three were males. The ages ranged from eighteen to seventy-eight years. Specific antiserum alone was used in thirty-two cases, ultraviolet therapy alone in twenty-six, and the continuous application of dilute Burrow's solution alone in thirty-two. The last group were used as controls. In all cases the treatment included alkalinization and complete bed rest during the febrile period. The length of time between the onset of the erysipelas and the institution of treatment averaged two and four-tenths days. In forty-five (50 per cent) of the cases the entire face was involved at the time the treatment was begun and the average white blood-cell count was 14,000.

In the cases treated with serum the injections were given intramuscularly at intervals of twenty-four hours. The average number of injections was 4.8. The febrile period averaged six and six-tenths days.

In the treatment with ultraviolet light, quartz-mercury burners were used. The average number of exposures was three. The treatments were given at intervals of approximately twenty-four hours to, and slightly beyond, the involved areas. Each area received a total of 57 erythema doses. The great majority of the patients showed decided improvement within twenty-four hours after the first exposure. Patients with an initial average fever of 103.7 degrees F. had a febrile course averaging four and nine-tenths days, whereas in the cases treated with serum the febrile course averaged six and six-tenths days. The patients treated with ultraviolet light were treated on the average twelve hours earlier than those treated with serum.

In the control series the febrile period averaged only three and nine-tenths days. Twenty-three of the thirty-two control patients were treated in the

spring and early summer whereas the majority of those treated with serum and ultraviolet light were seen in the fall and winter months. In the control cases the average white cell count was only 15,000 whereas in each of the other series it was 15,000. In the control series the average initial temperature peak was only 102.6 degrees F. Ten of the control cases originated in the same building. The authors therefore conclude that the control series was not strictly comparable with the others as seasonal influence and a common source of infection were important factors to be considered.

They believe that if the seasonal incidence the lapse of time before treatment, the general condition of the patient, and previous treatment are considered, one should not be so confused in evaluating the effect of various types of treatment. They therefore disagree with the statement that the duration of the disease is so variable that it is very difficult to judge the effects of therapy.

They conclude that ultraviolet irradiation is the treatment of choice for facial erysipelas.

ELLA M. SALMONSON

Brodie, M. and Park, W. H.: Active Immunization Against Poliomyelitis. *J Am Med Ass* 1935, 105 1049

The authors prepared a vaccine of the poliomyelitis virus inactivated with formaldehyde. They used equal parts of a 0.2 per cent solution of formaldehyde and a 30 per cent suspension of virus obtained from the spinal cords of infected monkeys. The mixture was kept at 37 degrees C for from eight to twelve hours. Two doses of 5 c. cm. caused antibody formation in practically all cases. This could be demonstrated in about one week and reached full development in from three to four weeks. In many cases it persisted as long as eight months. That the material is safe has been demonstrated in more than 5,300 human immunizations. The vaccine was used in a small outbreak of poliomyelitis in Kern County, California, but the incidence of the disease was too low and the number of persons vaccinated was too small to yield definite information. In New York and Newark, N. J. large groups of children are being immunized and followed with controls. The authors hope to immunize a sufficient number to make a comparative study between the immunized and the non-immunized. MARION E. LAMBERT, M.D.

ANESTHESIA

Farson, F. B. New Anesthetic Agents and Methods. *Practitioner* 1935, 35 577

Farson discusses two new methods of administering volatile anesthetics. One is an apparatus for using gas in a closed circuit with carbon dioxide absorption of either the single-phase or the two-phase type. The latter decreases the amount of dead space to the minimum. A pharyngeal tube has been designed which may be effectually sealed into the pharynx by means of an inflatable rubber cuff which

prevents leakage with pressures up to 30 mm. Hg. The other known as "Allanitt's gas-als apparatus," is used to secure analgesia rather than anesthesia as labor and is under the control of the patient.

Cyclopropane, an inflammable gas, is one of the new anesthetic agents. A concentration of from 10 to 30 per cent will give full surgical anesthesia, but cyclopropane should always be administered with an oxygen percentage greater than 30. If the proportion of cyclopropane rises to 45 per cent, respiratory failure results. However experiments indicate that there is a large margin between respiratory and circulatory failure. As the patient passes rapidly through the various stages of anesthesia and there is no protective laryngeal spasm, the anesthetist need not increase the percentage of gas faster than from 600 to 700 c. cm. per minute for two or three minutes and should then wait for several minutes to permit distribution of the gas and the development of the maximum narcotic effect. Because cyclopropane is not a respiratory stimulant and is administered with a high concentration of oxygen, no change in the minute volume may occur until depressive doses are reached. Anesthesia is quiet and good. The muscular relaxation is similar to that produced in chloroform. Recovery is rapid. Post anesthetic complications are similar to those of other gaseous anesthetics. The quiet respiration, ample oxygen supply and quick recovery of the cough reflex render the use of cyclopropane especially advantageous in thoracic surgery.

Dividing ether or vinylene, can be administered by the open drop method or by the closed method with or without carbon-dioxide absorption. Care must be taken to prevent asphyxia. Anesthesia sufficient for abdominal surgery is obtained in three and a half minutes. If the drug is given slowly during the terminal stages of the operation the patient may be talking at the time of the last skin suture. Muscular relaxation equals that obtained with ether and vomiting occurs in only 9.5 per cent of cases. There is a comparative absence of irritation of the respiratory tract and no irritation of the kidneys. A slight drop in the blood pressure is produced. Excessive doses cause respiratory paralysis followed closely by cardiac failure. Goldschmidt says that necrosis of the liver may follow too long anesthetics with this drug.

Sodium evipan, a derivative of barbituric acid, is dissolved immediately before use in distilled water to make a 10 per cent solution. It is administered intravenously. The maximum dose is 0.16 c. cm. of the solution per kilogram of body weight. Lamber suggests injecting the solution at the rate of 4 c. cm. per minute until the patient can no longer talk, and then continuing the injection at the same rate until as much again has been given for short operations and twice as much again for long operations. Consciousness is lost in about twenty seconds and returns in from fifteen to twenty minutes. The blood pressure falls from 10 to 30 mm. Hg. The drug seems to produce no deleterious effect on any organs.

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The popularity of avertin as a basal anesthetic is increasing and many are advocating its use in large doses with morphine for full surgical anesthesia, especially in children whose vital centers tolerate larger doses of this drug per kilogram than do adults.

ELIZABETH M. CRANSTON

Baetzner, W. *Evipan-Sodium Anesthesia Its Past and Future (Die Evipan Natrium-Narkose, Rueckblick und Ausblick)* 59 Tag d deutsch Ges f Chir, Berlin, 1935

Practically all of the hopes held for evipan-sodium narcosis seem to have been fulfilled. Such narcosis has now been induced in more than 1,500,000 cases in all countries. Most of its users are very enthusiastic about it, and apparently none of them has discarded it entirely. However, the recent reports of fatal accidents require investigation to ascertain whether the present-day opinion of the value of evipan-sodium narcosis must be radically changed. According to the statistics of the chemical company producing evipan sodium the total number of deaths attributable to the anesthetic is 60 and most of them were due to improper dosage. Not infrequently, the directions for dosage as given by early users were misunderstood and therefore too large doses were administered especially for prolonged anesthetics.

The dosage is the all important factor in evipan-sodium narcosis. Its determination on the basis of the patient's weight and an estimation of his general condition is not satisfactory. It must be calculated biologically, that is, from the action of the drug. The attempt must be made to use the smallest amount of the drug that will produce narcosis. Therefore even the first cubic centimeter must be injected slowly, from twenty-five to thirty seconds being taken for the injection. If deep sleep begins after 1 c cm has been injected, the injection should be stopped for from one to one and a half minutes because in patients who are very ill the effect is often delayed. With increasing experience it becomes possible to estimate the reaction to evipan sodium from the effect of the first cubic centimeter. When the dosage is based on the action of the drug the intravenous injection of evipan sodium becomes controllable. In 2,000 anesthetics induced with evipan sodium the author had no serious accidents.

Evipan sodium anesthesia is in no way responsible for postoperative deaths. In fact, the author has been convinced that because of the mildness of the somatic and psychic trauma occurring with its use it improves the prognosis of inflammatory lesions.

As there have recently been reports of fatal accidents in the surgical treatment of inflammatory lesions of the floor of the mouth, such as phlegmon of the neck, the author believes that evipan-sodium anesthesia should not be used in cases of such lesions. In England, death has been prevented in these cases by the introduction of a nasal catheter or by intubation or tracheotomy. It is believed there that death is due, not to a toxic respiratory paralysis

produced by the evipan sodium, but to mechanical disturbances from spasm of the glottis.

The author does not know of any contra-indication to evipan-sodium anesthesia. He is of the opinion that the induction always depends upon the problem of dosage and the experience of the physician. However it must be borne in mind that the detoxication of the drug occurs in the liver and the by-products are excreted by the kidneys. In patients with hepatic insufficiency a comparatively prolonged narcosis is induced by very small doses and detoxication is delayed. In the cases of such patients special care is necessary from the start, and if a second sleep begins after the operation, it must be interrupted.

The chief indications for the use of evipan sodium are short narcosis and the induction anesthesia to be continued with ether or vinethen. The author recommends the administration of morphine and atropine one hour before the induction of the anesthesia.

Prolonged anesthesia induced with evipan sodium is possible but cannot be recommended for general use. The author has used evipan sodium in the cases of very ill patients because after careful consideration of the anesthetic risk, he considers evipan sodium the safest of all anesthetics.

When prolonged anesthesia is to be induced with evipan sodium it must be remembered that the sensitivity to the anesthetic constantly increases, that the function of the organs becomes progressively poorer, that even the injection of very small amounts of the anesthetic may produce a dangerous concentration in the blood, and that, as detoxification is progressively diminished, respiratory paralysis may supervene.

The author believes that evipan sodium does not belong in the office of the general practitioner, at least not until he is fully trained in all anesthetic methods. The patient should never be sent out into the street unaccompanied nor permitted to leave the clinic until he has had ample opportunity to rest following his awakening.

With increasing experience there have been some refinements in the technique of the administration of evipan sodium, but the fundamental rules first laid down have not been changed. Knowledge of the various methods of inducing anesthesia is an absolute prerequisite. The author believes that evipan-sodium anesthesia should be developed further so that everyone may learn to control the dosage.

(W. BAETZNER) WILLIAM C. BECK, M.D.

Baetzner, W. *A New Inhalation Narcotic, Vinethen (Ueber eine neue Inhalationsnarkose mit Vinethen)* 59 Tag d deutsch Ges f Chir, Berlin, 1935

On the basis of his experience with it in about 200 operations performed during the last two years the author recommends vinethen as a new inhalation anesthetic. First he cites 2 cases. One was that of a forty-six-year-old patient with a ureteral stone in the lumbar region. The operation was begun forty seconds after the beginning of the anesthesia and

consumed forty minutes. The amount of vinethen used was 65 gm. The patient awoke one and one-half minutes after closure of the abdomen. The second case was one of shoulder luxation. The reduction was begun thirty seconds after the beginning of the anesthesia and was completed in three minutes. Three and one-half minutes later the patient walked out of the operating room.

Vinethen is a vinyl ether which boils at a temperature between 25 and 31 degrees. In America, Mollitor has tested it physiologically and pharmacologically and by animal experimentation. He and American and English anesthetists have already used it for the induction of anesthesia in a large number of cases. In Germany Bartscher has worked out the technique.

In the use of vinethen for brief anesthesia consciousness is lost after a few inhalations and as a rule there are no signs of excitation. The patient is soon ready for operation and wakes within a few minutes after removal of the anesthetic. Anesthesia induced with vinethen has great advantages over ether and ethyl-chloride narcosis, especially as it can be prolonged for a considerable length of time. In contrast to eripen-sodium narcosis, it has the advantage that it can be controlled absolutely.

In addition to short narcosis, a longer narcosis may be induced if an injection of atropin is given forty five minutes previously. However the amount of vinethen administered must not exceed from 80 to 100 c cm and the duration of the anesthesia must not exceed one-half hour. In a large number of operations of moderate and great severity the vinethen had a very quick effect without preceding excitation and produced a deeper anesthesia than chloroform without the depressive effect of chloroform on the circulation and respiration. Throughout the entire anesthesia the patient retained a normal rosy complexion.

Vinethen anesthesia is of wide therapeutic use even in its deep stages. It is controllable and can be very rapidly changed according to the requirements of the operation. It can be interrupted very quickly. Even after a long continued deep anesthesia, awakening occurs within a few minutes. In the cases reviewed the longest period was seven minutes. Post anesthetic sleep does not occur, and there are no postanesthetic effects such as follow the use of other anesthetics. The anesthesia is extraordinarily pleasant to the subject, and is splendidly adapted to surgery on children.

In addition to its use for short and longer narcosis, vinethen may be employed as a supplemental anesthetic. Anesthesia which has been begun with ether may be increased with vinethen, and anesthesia begun with vinethen may be continued with ether. In these procedures great care is necessary just as in the combined use of other anesthetics, the administration of the second anesthetic must be started at the right time. It should be administered slowly and both anesthetics should be given together before the use of the first anesthetic is dis-

continued. The only death in Bartscher's cases occurred in a case of carcinoma of the rectum in which the anesthesia was maintained for two and one-half hours and the amount of vinethen used was about 350 gm. Autopsy disclosed, in addition to very severe arteriosclerotic changes in the liver signs of acute, yellow atrophy. A relationship of the vinethen to the liver injury therefore could not be excluded. It has been determined that when a certain limit is exceeded in the use of vinethen there is danger of secondary chemical changes. English anesthetists believe that the liver is injured if more than 100 c cm. of vinethen is used, and they attribute the injury to a lack of oxygen in the blood.

The death cited, which occurred in 1934 led Bartscher to abandon and advise against prolonged vinethen anesthesia either with or without oxygen. Following the limitations as to time and amount which he placed upon the use of vinethen, he has had no further accidents. He concludes that if in a large series of anesthetics induced with vinethen by other anesthetists his favorable impressions are substantiated, vinethen will prove a valuable addition to inhalation anesthetics as it seems to combine the safety of ether with the deep narcosis of chloroform, the rapid induction of anesthesia obtained with eripen, and the rapid awakening after gas anesthesia.

(W. BARTSCHER) JOHN W. BARTON, M.D.

Cardia, A., and Ligon, A.: Renal Complications Following General Anesthesia Induced with Ether (Le comparsion renal consecutive ad anestesia generala spor per inalacione) *Ann. Med. et Chir.* 933, 14, 301.

There is still considerable uncertainty regarding the effects of ether on the kidney especially as to the extent and duration of the damage that may be inflicted. To throw some light on these obscure points the authors studied the renal function of four groups of patients and eighty dogs before and after ether anesthesia.

In the first clinical group there were fifty-four patients with normal renal function who were given ether with the open mask. Of this group, 18 per cent showed no renal changes and 81 per cent showed changes of varying degree and duration.

In the second clinical group there were thirty-five patients who had some renal insufficiency before operation and were given sedative drugs before the ether. All of these patients showed increased renal insufficiency after the operation.

In the third clinical group there were twenty-two patients with intact kidneys who were given no sedative drugs before the induction of the ether anesthesia. All of these patients showed functional damage of the kidneys after the operation.

In the fourth clinical group there were twenty-three similarly treated patients with pre-operative evidence of renal damage. All of these patients showed increased renal damage after the operation.

The findings in the studies on dogs, some of which were given sedatives before the induction of the ether

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anesthesia, confirmed the findings of the clinical studies.

The authors conclude that the changes in renal function are an effect of ether and depend primarily upon the patient's condition.

EUGENE T LEDDY, M.D.

Philippides *Experiences with Kirschner's Spinal Anesthesia. Report on 2,500 Cases* (Erfahrungen mit der Kirschnerschen Spinalanästhesie. Bericht ueber 2500 Faelle) *Arch f klin Chir*, 1935, 181: 479

This article reports the experience at the Kirschner Clinic with Kirschner's spinal anesthesia in more than 2,500 cases. General anesthesia is associated with considerable danger on account of the possibility of pulmonary complications, acidosis, and injury to the parenchymatous organs when the anesthesia is prolonged, especially in abdominal operations in which deep narcosis is necessary. The attempt to perform extensive abdominal operations under local anesthesia frequently fails. The old method of lumbar anesthesia induced by Bier's method is not always suitable. It is unsuitable especially for operations above the umbilicus. The possibility of individualizing the dosage is lacking. The entire distal portion of the body up to the proximal margin of the anesthetic zone must be completely desensitized, and there is no way of absolutely preventing undesired ascent of the solution toward the brain. In high anesthesia the blood pressure falls and respiratory and vasomotor paralyses occur. The old lumbar anesthesia is safe only below the umbilicus.

Recently anesthetic solutions of lower specific gravity than the spinal fluid have been used. It is a basic error to inject a previously determined quantity of the anesthetic. In 1931 Kirschner introduced the fractionated dose. Pitken's statement that the extent of the anesthesia can be influenced by using a novocain solution of low specific gravity is erroneous. In Germany Pantocain L is used instead of the American spinocain, but with this, also, accidents sometimes occur. Kirschner tried to replace his "percaïn plombe" with pantocain while retaining the original Kirschner technique (135 anesthetics). Instead of the 0.8 per cent solution of pantocain he used a 0.4 per cent solution, as with the former very high and deep anesthesia was produced by as little as 1.5 c cm. At first, 1.5 c cm was injected and thereafter additional amounts of 0.5 c cm were injected as needed until, for high anesthesia, a total of 2.5 c cm had been given. Anesthesia began in from four to five minutes. The anesthesia and the relaxation of the abdominal wall were complete. For thirty minutes the level of the anesthesia continued to rise and definite limitation of its ascent was impossible. For this reason, pantocain is not suitable to form definite layers, or its affinity for nerve tissue is slight. A large part of it is therefore forced up-

ward by the circulation of the spinal fluid. The concentration and quantity of pantocain recommended by the manufacturer are too great. The author warns against its use.

Jones attempts to regulate the level of the anesthesia by changing the site of the puncture and administering larger or smaller quantities of a 1,500 solution of percaïn. In this procedure also individualization of the dosage is impossible and there is no certainty as to the spread of the anesthetic solution.

Kirschner avoids anesthetizing completely all of the nerve roots of parts of the body from the cauda equina to the highest pair of nerve roots bounding the operative field above. He introduces the anesthetic only into the region of the spinal roots supplying the operative field. By increasing or reducing the size of the air bubble, he moves the anesthetic solution upward just to the nerve roots of the upper limit of the operative field so that the anesthetic plombe floating on the spinal fluid is carried into the region of the nerve roots to be anesthetized. The anesthetic solution cannot extend further upward because it clings to a plombe which is dissolved in the spinal fluid only with difficulty and is of lower specific gravity than the spinal fluid. The dosage can be individualized, the solution being injected a little at a time.

For the past year the author has been using a 0.25 per cent percaïn plombe which is put up in sterile ampoules. The patient must be psychically well prepared before the induction of the anesthesia. Twenty minutes before the operation 0.05 gm of ephedrin is given to stabilize the blood pressure. The lumbar anesthesia is induced with the patient on his side in a Trendelenburg position of 25 degrees. The diseased side is up, as frequently the anesthesia occurs more intensely at first in the upper half (unilateral anesthesia for operations on an extremity or kidney).

In using high spinal anesthesia for operations on the upper abdomen a puncture is made between the first and second lumbar vertebrae, 20 c cm of spinal fluid are withdrawn with the air syringe, and from 1.5 to 1.8 c cm of air are injected. To determine the spinal-fluid level the air is then withdrawn until the fluid appears in the glass inset in the rubber tube. The fluid level is then at the level of the point of the needle. An injection of 5 c cm of air is then made to drive the fluid level a little further upward to the level of the seventh dorsal vertebra. The opening of the special cannula is then directed cranial and 1.5 c cm of percaïn plombe is injected in from one to two seconds. The cock of the little syringe is now moved around and 2 c cm of air are injected. After five minutes the anesthesia is tested. If it has not yet reached the ensiform process, 0.5 c cm of plombe and from 2 to 3 c cm of air are injected. If necessary, the second injection is repeated after five minutes. In 38 per cent of the cases 1.5 c cm of plombe is sufficient. A dose larger than 2.5 c cm is never required.

For low spinal anesthesia a puncture is made between the first and second lumbar vertebrae, 15 c.cm. of spinal fluid are withdrawn, and 15 c.cm. of air are injected and after the fluid level has been determined, 3 c.cm. of air and from 1 to 1.5 c.cm. of plobe are injected, and then 3 c.cm. of air. The anesthetic is injected in an upward direction. After five minutes, 0.5 c.cm. of plobe and from 1 to 3 c.cm. of air may be given if necessary.

For exclusion of the lower extremities, the puncture is made between the third and fourth lumbar vertebrae from 15 to 15 c.cm. of spinal fluid are withdrawn, and 15 c.cm. of air are injected. The fluid level is then determined and 1 c.cm. of air and 1 c.cm. of plobe are injected with the cannula operating pointing toward the coccyx. Another injection of 1 c.cm. of air is then made and, if necessary, another injection of 0.5 c.cm. of plobe is given after five minutes.

For "riding-breeches" anesthesia (anesthesia of the parts surrounding the anus), the puncture is made between the fourth and fifth lumbar vertebrae 5 c.cm. of spinal fluid are withdrawn, and 3 c.cm. of air are injected with the cannula directed toward the coccyx. Then 1 c.cm. of plobe and a little more air are injected slowly.

The spinal fluid must always be aspirated slowly so as not to aspirate the roots. After 15 c.cm. of air have been introduced into the dural sac and from 1 to 3 c.cm. have been withdrawn, spinal fluid usually appears in the glass inset. However, sometimes the spinal fluid does not appear until 5 c.cm. or more air have been aspirated. Under such circumstances the fluid level was located by cranial. This is the condition in persons with little spinal fluid and a narrow dural sac. Additional air must be injected sparingly. From 1 to 3 c.cm. instead of 5 c.cm. are enough for high anesthesia. The plobe should then be injected more slowly. After anesthesia is obtained the patient is placed on his back. The angle of the Trendelenburg oblique position which is at 35 degrees must not be decreased during the operation, but may be increased if desired. The head must be lower than the buttocks. The Kirschner Clinic has given up the practice of withdrawing the plobe after the beginning of the anesthesia. However, when the anesthetic has been driven higher than was intended a little air and spinal fluid are withdrawn, whereupon the plobe sinks.

In girdle anesthesia the mobility of the lower extremities is generally retained. The optimal effect is obtained with the minimal quantity of the anesthetic.

In the cases of cachectic patients and cases of peritonitis or tetanus the anesthetic should not necessarily be forced as far as the endosse process. The upper angle of the skin incision is made insensitive with a local anesthetic injected under pressure. Also in the cases of those patients and those of dehydrated patients caution must be used in the withdrawal of spinal fluid. For major abdominal operations a local anesthetic is injected under pressure under the peri-

etal peritoneum in a circle around the wound only to block the reflex paths along the sympathetic, which control the vessels and the parenchymatous organs. This prevents shock and collapse. For the same reason the splanchnic and vagus nerves are excluded with a local anesthetic injected under pressure at the level of the cardia after the abdominal cavity has been opened. A 1/4 per cent solution of novocain with suprarenin is used for the purpose.

For gall-bladder operations, novocain solution is injected in the region of the right dome of the diaphragm to block the phrenic nerve.

The spinal anesthesia lasts from one and one-half to two hours. To dull the patient's psyche a solution consisting of 0.005 gm. of scopolamin, 0.01 gm. of eucodal, and 0.015 gm. of ephedrin to 1 c.cm. is given routinely by slow intravenous injection immediately after the ending of the anesthesia in every case of high and prolonged abdominal operation. From 0.5 to 0.8 c.cm. rarely a whole cubic centimeter is administered. This prevents nausea and the vagus reflex. There is no period of excitement such as occurs when it is given by subcutaneous injection. Its effect persists for one hour. There is no disturbance of intestinal peristalsis. The blood pressure rises. In the 1 per cent of cases in which this drug fails to act from 1 to 3 c.cm. of ephedrin are given intravenously. When the patient is lifted from the operating table to the cart and from the cart to the bed after the operation, his head must be kept lower than the rest of his body as otherwise headache will develop. The foot of the bed should be elevated for the first twenty-four hours. Vomiting and intestinal paralysis do not occur.

The instrument must be carefully kept from contact with soda. It must be absolutely tight. The anesthetic plobe must not be injected with too much pressure. At the end of the injection of the plobe the connection between the air syringe and the dural sac must be shut off at once each time by turning the cock of the small syringe so that neither air spinal fluid, nor plobe can flow back into the large air cylinder. In the determination of the level of the anesthesia one must be guided by the loss of the sense of pain rather than that of the sense of touch. The amount of anesthetic injected must not be too small.

The author has almost entirely given up general anesthesia for operations on the abdomen. In 3,500 spinal anesthetics there were 2 deaths from circulatory insufficiency and 1 death at the beginning of the operation from respiratory paralysis which occurred because the anesthetic was driven too high by error. Some of the patients coming to operation were in very poor condition as the result of ileus, gastro-intestinal perforation, or hepatic insufficiency. In the cases of such patients particular care is necessary. Even for high anesthesia only 1 c.cm. of plobe should be used for the first injection, this should be followed by the injection of 0.5 c.cm., and generous use should be made of a local anesthetic injected under pressure. Ephedrin is very satisfactory

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for preventing a sharp fall in the blood pressure. In 50 per cent of the cases the blood pressure remained unchanged, and in 9 per cent it rose. The systolic pressure fell below 90 mm Hg in only 4.7 per cent of the high anesthetics. Collapse occurred in 2 per cent of 220 high anesthetics. Blood-pressure decreases of from 20 to 30 mm Hg are not dangerous. Blood-pressure decreases even to below 70 mm Hg were often borne by the patients without recognizable injury because the head was kept low, which was the invariable rule. Decreases in the blood pressure become dangerous when, at the same time, thoracic breathing is prevented by paralysis of the intercostal nerves.

If the spinal anesthetic is forced very high, vasomotor paralysis of the pulmonary vessels and stasis of blood in the lungs may occur. Therefore a decrease in the blood pressure is much more dangerous in spinal anesthesia involving the thoracic musculature than in anesthesia which leaves the muscles of the thorax unaffected. Accordingly, in the cases of patients with impaired circulation it is necessary to be doubly cautious to prevent extension of the anesthesia beyond the desired level.

With Kirschner's high spinal anesthesia the lower extremities are not completely paralyzed and therefore regulation of the blood vessels of the extremities is maintained. There is a sufficient number of vasoconstrictors to regulate the circulation. Moreover, the anesthesia extends slowly, the loss of the vasomotor function is gradual, and the circulation is given time to accommodate itself. Circulatory insufficiency can be relieved in all cases by the intravenous infusion of a 5 per cent solution of dextrose. The intravenous injection of ephedrin is effective in incomplete collapse. When a slight decrease in the blood pressure occurs the inspiration of carbon dioxide is advisable. Patients with hypotension must be given an intravenous infusion of dextrose immediately before the induction of the spinal anesthesia. When scopolamin was administered simultaneously, vomiting occurred in only 9.5 per cent of the cases, and headache in only 5 per cent. Measurements of the spinal-fluid pressure show that after the described removal of spinal fluid the pres-

sure sinks to below 0. After the insufflation of air there occurs a positive pressure up to 300 mm H₂O which recedes quickly. Elevation of the pelvis is a sure preventive of postoperative headache. "Vermont" and 40 c.c.m. of a 40 per cent solution of dextrose may also be used to combat headache. Two cases of temporary abducens paresis were observed. Hypesthesias were quickly relieved by the use of a local anesthetic injected under pressure.

There are no contra-indications except in cases of extremely urgent operation in which there is no time for spinal anesthesia, such, for instance, as cases of intra-abdominal hemorrhages. The complete relaxation of the abdominal wall and the falling back of the intestines, which are for the most part contracted, are ideal. The induction of high anesthesia requires from fifteen to twenty minutes (ERICH HEMPEL) FLORENCE ANNAN CARPENTER

Corlette, C. E. Premedication for Local Anesthesia. *Med J Australia*, 1935, 2, 1

Premedication for local anesthesia should remove fear, induce calm, dull the perception of pain, and dim the memory. These requirements are met by morphine and hyocine skillfully used.

Some patients are thought to manifest a high degree of idiosyncrasy to hyocine, but the human subject reacts differently at different ages. A man between the ages of twenty and twenty-five years is approximately two and a half times as tolerant as a man aged fifty.

Morphine and hyocine, like alcohol and ether, tend to induce at an early stage a condition of more or less excitement or restlessness. As a rule operation should be delayed for two hours to allow the restless stage to pass. The dose of morphine should be increased gradually so that the effect can be better controlled. The dose of hyocine is increased for young adults, but kept low for older patients. The effect of the first dose should always be noted before the second dose is administered. Under-sized patients should be given a dose corresponding to their size. Morphine should be diminished in anemia, shock, and cyanosis, and hyocine should be diminished in thyrotoxicosis. GEORGE A. COLLETT, M.D.

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ROENTGENOLOGY

Ginsburg, W.: Roentgen Diagnosis of Fractures of the Base of the Skull. *Am J Roentgenol* 1935, 34: 335

Up to within recent years the roentgen diagnosis of fractures of the base of the skull was rather uncertain and unsatisfactory. This was due partly to the fact that, because of the complicated plastic structure of this part of the skull, superposition produced a multiplicity of lines and shadows which were difficult to differentiate from fracture lines, and partly to technical shortcomings which prevented clear visualization of certain parts. The customary reliance on profile and frontal roentgenograms greatly limited the diagnostic skill of roentgen examination.

Largely as the result of the work of Schneller, Mayer, Stenvers, and others who have worked out projections of exposures which bring special parts of the base into clearer view, the diagnosis has been greatly facilitated. The author summarizes the eight principal diagnostic procedures for complicated fracture of the base of the skull, including those of the occipital bone. These are as follows:

1. For the base of the skull (a) Schneller's axial projection (b) inverse axial projection (c) ordinary lateral projection (in profile)

2. For the temporal bones (a) the Schneller-Lange-Sonnenkalb lateral projection (b) Stenvers postero-anterior projection (c) Mayer's axial projection (d) Sonnenkalb's tangential projection (e) Schneller's sagittal projection

Ginsburg discusses the special value of each of these methods in the examination of particular parts of the skull and reports five cases in which a fracture of the base of the skull was diagnosed by roentgenography. The cases were chosen especially for the purpose of showing the value of methodical procedures in the exact and definite localization of traumatic lesions of the head. The article is concluded with the following summary:

Modern methodical roentgen examination is of great value for the disclosure of fractures of the cranium.

1. In complicated cases and for the guidance of operative intervention the modern methods yield excellent information.

2. The new method of procedure offers additional possibilities of better supervision of the process of healing in fractured bones.

3. The more extensive and accurate procedure of localized and detailed diagnosis is of the utmost importance in facilitating the solution of many problems pertaining to forensic medicine.

WALTER HARTMAN, M.D.

Kivaki, K.: The Analysis of the Roentgen Shadow of the Cardiac Vessels, Especially the Determination of the Individual Sections in the Cadaver (*Die Analyse des Herzgefäßschattens nach dem Tode, besonders die Bestimmung der einzelnen Abschnitte an der Leiche*). *Archiv für Naturgeschichte* 1935, 14: 1

The author took roentgenograms of the heart in different directions in cases that had been accurately diagnosed in life and at autopsy immediately after death. He then fixed the corpse in formalin solution and after surrounding the various portions of the heart and large vessels with shadow-producing substances (lead foil) he again took roentgenograms of the heart and cardiac vessels in different directions.

The dorsoventral exposure was used to obtain a sagittal picture of the heart. This showed a pear-shaped shadow between the relatively transparent pulmonary fields, lying downward from the right to the left about one third on the right and two thirds on the left of the midline. The lower broader portion showed an arc-shaped border composed of various sized smaller arcs, two on the right and three on the left (sometimes a fourth). The first arc on the right was formed by the shadow of the large vessels. The second arc on the right was produced by the right auricle. Occasionally the latter arc showed two smaller arcs, especially in cases with blood stasis. Sometimes a lighter shadow passed obliquely from the right lower arc outward to the diaphragm. This was attributed to the inferior vena cava, and the lower part of this arc was interpreted as the shadow of the insertion of the right hepatic vein into the inferior vena cava. The azygos-venous vein was shown by a shadow running from the right upper arc to the right and outward. The left border of the middle shadow was usually sharper than the right and consisted of three or four arcs. The first on the left was darker and short with marked pulsations and was attributed to the arc of the aorta. The second and third arcs on the left were very faint and the borders between them were sometimes indistinct. The second arc on the left was produced by the pulmonary artery. The third arc on the left was produced by the left auricle. The fourth arc on the left was large, distinctly dilated outward, and pulsated strongly. It was produced by the left ventricle and sometimes also by the right ventricle. The upper border of the heart was indeterminate. The lower border of the heart was usually not noticeable because of the juxtaposition of the liver and stomach.

The true oblique diameter with the right shoulder thrown out prominently (fencing position) was valuable to show the aorta. By turning the patient about 45 degrees to the right, the so-called Hohlkreuz space was freed between the spine and cardiac vessel.

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shadows where the esophagus passes. The descending aorta appeared prominently. The border of the shadow of the cardiac vessels against the Holzknicht space was formed by a number of arcs above, the superior vena cava, below this, the auricular arc, and still further below, the inferior vena cava. The anterior border of the cardiac vessels shadow also consisted of a few arcs, of which the upper arc represented the lateral border of the ascending aorta, the upper middle arc the pulmonary artery, and the lower portion of the same the pulmonary cone. The shadow of the left auricle did not appear. The lower border represented the left ventricle, but the upper border was not visible.

The second oblique diameter with the left shoulder protruding was of value to show the ascending aorta. The anterior and posterior border of the cardiac vessels shadow formed a few arcs. The shadow of the descending aorta was barely visible. The upper part of the anterior border represented the superior vena cava, and at the extreme upper end, the anony-mous vein. The part lying below the superior vena cava was formed by the ascending aorta. The lower very large arc consisted chiefly of the right auricle. The posterior border was formed above by the left auricle and below by the left ventricle.

The frontal direction was clinically useful to show the sagittal depth of the heart and the angle of the heart to the body axis. The anterior border of the cardiac vessels was formed by the ascending aorta, by the pulmonary artery and its subjacent pulmonary cone, and still lower by the anterior surface of the ventricle, especially the right. The posterior border of the heart corresponded with the right auricle and the inferior vena cava.

The roentgenogram of the thorax in the corpse was quite different from that of the living thorax. The form, number and relationships of the arcs of the cardiac vessel shadows remained the same in the corpse as in the living thorax, so that certain conclusions concerning the living heart could be drawn. However, it should be borne in mind that the roentgenogram of the dead heart showed a marked state of contraction (systole), whereas the living heart usually appeared in diastole. Furthermore, in the dead thorax the distribution of blood and the elasticity and the air content of the lungs were different from those in the living.

LOUIS NEUWELT, M D

Grinnan, A G Roentgenological Bone Changes in Sickle-Cell and Erythroblastic Anemia 4m
J Roentgenol, 1935, 34 297

Four cases of sickle-cell and five of erythroblastic anemia have come under the author's observation. All showed roentgenological bone changes. The author discusses both conditions from the clinical and pathological standpoints and reports the nine cases in detail, describing the roentgen findings in each. These findings are summarized as follows:

1 The four cases of sickle-cell anemia showed thickening of the frontal, parietal, occipital, and

temporal bones with thinning of the inner tables and marked thinning or absence of the outer tables.

2 The skull changes were so similar in the cases of sickle-cell anemia and the cases of erythroblastic anemia that they could not be differentiated by roentgen examination alone.

3 Changes in the long bones were found in only one case of sickle-cell anemia. They consisted of cortical thinning, expansion of the shafts, and medullary trabeculations. Striations were found also in the pelvis and scapulae. The bone changes are not typical of sickle-cell anemia, being similar to those occurring in erythroblastic anemia.

4 The five cases of erythroblastic anemia showed bone changes which varied in degree according to the age of the patient and the duration and severity of the disease.

5 Three of the cases of erythroblastic anemia showed thickening of the skull and extensive changes in the long bones and other bones of the skeleton.

6 The earliest definite bone changes found in erythroblastic anemia occurred in the metacarpals and skull.

7 Four of the patients with erythroblastic anemia were children of Italian parentage. The four patients with sickle-cell anemia were negro children.

8 Case 8 has been presented because it shows that the presence of erythroblasts, even for a relatively short time, produces medullary thickening of the skull. This case is of interest also because the patient was a child of English-Irish parentage whereas the condition is generally believed to occur only in the Mediterranean races.

9 The bone changes found on roentgen examination in sickle-cell anemia and erythroblastic anemia are very similar and, alone, are not diagnostic of either condition.

ADOLPH HARTUNG, M D

Fried, H Actinomycosis and Roentgen Therapy With an Illustrative Case Radiology, 1935, 25 308

The effectiveness of irradiation combined either with surgery or the use of iodides or both in the treatment of actinomycosis has been attested by many observers, most of whom believe that this method of treatment is superior to any other. The author presents a brief discussion of the natural history and pathology of actinomycosis. He states that the lesions associated with the condition are frequently classed with the infective granulomas which are generally regarded as highly radiosensitive. The exact action of roentgen rays on the lesions is not known. It is generally believed that the efficacy of irradiation in actinomycosis is due to an indirect action of the rays which injures or so modifies the tissues as to render them poor media for the growth of the organism. The most important factor in the favorable action of the rays is believed to be the high degree of radiosensitivity of the lesions.

The author reports a case in which treatment by irradiation combined with surgery and the use of

Iodides resulted in complete cure without residual keloids or disfiguring scars. Roentgen irradiation was administered to all lesions of the head and neck, treatments with a third of an erythema dose being given at the site of the disease once or twice weekly, properly spaced as to time and area, over a period of sixty-one days. Other factors were 140 kv 5 ma and filtration with 4 mm. of aluminum.

In the course of the treatment it was noted that although the pathological structure within the area coinciding with the palpable borders of the lesion disappeared within ten days, new lesions developed in contiguous areas that had been shielded. This apparently indicated that the disease process had extended beyond the detectable limits before treatment was administered. Accordingly it was considered advisable to map out fields for irradiation from 2 to 5 cm. beyond the palpable borders of the lesion.

Keloids resulting from the lesions and incisions were readily amenable to irradiation. Treatment for the keloids was continued after the actinomyotic process was completely arrested. The response to 50 per cent of an erythema dose with the use of 150 kv 5 ma and a 4-mm. filter of aluminum was most gratifying.

Various irradiation techniques used by others in the treatment of actinomycosis are mentioned. The quality of the rays ranges from 95 to 300 kv, the filtration from 4 mm. of aluminum to 1.5 mm. of copper and the intensity from 500 to 800 r. Some roentgenologists use the larger initial dose method, whereas others rely on the simple fractionated dosage, and a third group employ the protracted fractionated technique. However all report apparently very satisfactory results. ADAM HARTMAN, M.D.

Cade, B., and Alchin, F. M.: Combined Distance Radiation of Hypopharyngeal Cancer. *Lancet*, 1935 229 65.

The authors have employed a method of therapy which included both X-ray and radium irradiation. The tumors treated were of the extrinsic laryngeal type and involved the hypopharynx. Anatomically, they were divided into four groups: epipharyngeal tumors, tumors of the posterior or lateral pharyngeal wall, pyriform fossa tumors, and post-cricoid carcinomas. Histologically, they were divided into three groups: squamous-celled carcinoma, transitional-celled carcinoma, and lympho-epithelioma. It was felt that the gross appearance of the lesions was as good a criterion of sensitivity as the microscopic grading if not a better criterion than the latter.

The method of treatment was as follows: (1) preliminary roentgen irradiation for five days, (2) simultaneous roentgen and gamma irradiation, and (3) gamma irradiation with the 2 gm. radium unit continued after cessation of the roentgen irradiation. The radium (2 gm.) was placed in a specially constructed bomb. The factors of the roentgen irradiation were 180 kv constant potential filtration with first 1.5 mm. of copper plus 1.0 mm. of aluminum

and later a Thoracos filter equivalent to 1.5 mm. of copper; a distance of from 45.0 to 50.0 cm. and fields varying from 80.0 to 150.0 sq. cm.

The treatment was found to be safe and to produce less cutaneous and mucosal destruction than the intensive method of Coutard. No damage to the cartilage was observed. The limits of general tolerance were not reached before an adequate dose had been given. Approximately one-third of the patients were treated without hospitalization.

The dosage varied in the different cases, depending upon the state of the tumor and the reaction. The total X-ray dose to the tumor varied between 1 and 1½ erythema doses. Both sides of the neck were treated. The amount of irradiation to the tumor was determined by the use of isodose curves.

This method of irradiation was employed in a group of fifty-two cases of extrinsic laryngeal cancer. The latter included twenty-three cases of pyriform fossa cancer, ten of post-cricoid cancer, seven of lateral and posterior pharyngeal cancer and twelve of epipharyngeal cancer. Seventeen of the patients have remained free from disease for periods up to three and a half years. Among the unsuccessful cases were those in which there was initial improvement followed by recurrence after a period of from six to eighteen months and those in which the disease progressed in spite of the treatment.

The authors contend that the group of tumors which show a state of partial regression and then remain stationary or again begin to grow when treated with one type of irradiation can be reduced in number by the use of the combined method of irradiation which produces different wave lengths. Variation of the wave length used appears to increase the radiosensitivity. EARL E. BARTT, M.D.

Leacutis, T.: Radiotherapy of Sarcoma of the Soft Parts (on the Basis of Statistical Analysis). *Radiology*, 1935 5 403.

Although the general term "sarcoma" implies pathologically a malignant tumor composed of cells of the connective tissue type and therefore of a rather uniform appearance, a marked variation is found when further elucidation of the nature or origin of the cells is attempted. This variation explains in large measure the wide divergence of radiosensitivity of the sarcomas from the highly radiosensitive lymphosarcoma at one extreme to the radioresistant sclerosing osteosarcoma at the other.

The author discusses irradiation therapy of sarcomas of the soft parts of various types and subtypes. He claims especially a practical advantage which results from such a procedure, first, the technique of irradiation (method, dose, fractionation, etc.) can be considered on the basis of radiosensitivity of each type of tumor, and second, the extent of irradiation can be determined by the known clinical course (extension, metastases) of that specific lesion. The subgroups of lymphosarcoma, melanoma, and gliosarcoma are omitted from the discussion.

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Comprehensive statistical publications are few and because of the indecisiveness as to what really should be included in the group of sarcoma, they are somewhat confused and even contradictory. Various authors are cited in support of this statement. In a review of 222 cases treated at the Harper Hospital, Detroit, which are tabulated, the incidence of survival for from five to twelve years was found to be 30 per cent. One hundred and one cases of this group were cases of soft-part sarcomas and formed the basis of the present study.

The tumors included fibroblastic sarcoma, fibrosarcoma, neurosarcoma, myxosarcoma, leiomyosarcoma, and rhabdomyosarcoma. All of the cases are tabulated with regard to age, sex, histological diagnosis, origin, stage, type of treatment, dose, series, extent of treatment, extent of metastases, result, duration since onset, and duration since treatment.

The technique of irradiation consisted in general of the use of rays of from 0.13 to 0.14 a°, 200 kv, and filtration with from 1 to 1.5 mm of copper and 1 mm of aluminum, and the administration of from 30 to 100 per cent SUD per focus according to the type of lesion and the method of treatment.

Under fibroblastic sarcomas are included all the sarcomatous tumors of the soft parts which cannot be placed in any of the well-characterized subgroups. Their pathological peculiarities are discussed at length. They presented the greatest variation from the point of view of radiosensitivity. In a general way, the rules of radiosensitivity agreed with the morphological structure, the greater the undifferentiation of the cells and the vascularity of the tumor and the less the amount of paraplasmic structures, the more responsive to irradiation the sarcoma, and vice versa. Because of the bulkiness of most of these tumors, irradiation must be carried out with rather large massive doses (from 90 to 100 per cent SUD). In all instances in which surgical intervention may be used to advantage it is associated with roentgen therapy. Supplemental irradiation of regions known to be the frequent sites of metastases is also advisable. Sixty-one of the 101 cases of the series belonged to this group and were treated mostly by a combination of surgery and irradiation. An apparent cure was obtained in 21 per cent.

Fibrosarcoma and neurosarcoma are discussed together because they possess certain features in common especially in regard to histogenesis and radiosensitivity. These features are described in detail. Since radical excision can be accomplished with ease in the great majority of instances, surgical intervention is the method of choice for the fibrosarcoma and irradiation should be carried out postoperatively for prophylaxis. In cases of neurosarcoma, irradiation therapy constitutes the predominating procedure. The first entails the administration of larger doses in more massive series, whereas in the latter irradiation is divided into small fractions and extended over a long period. Of 17 cases of fibrosarcoma treated by a combination of surgery and irradiation, 82.4 per cent were apparently cured.

Of the 3 patients with neurosarcoma, 1 is dead. The 2 others are alive seven years after the beginning of the treatment.

Myxosarcomas form a favorable group from the point of view of radiosensitivity. They respond well to large doses (from 90 to 100 per cent SUD) of roentgen rays. The regression occurs at a somewhat slower rate than in most other radioresponsive sarcomas, but complete disappearance, following repetition of several series of roentgen therapy, is not infrequent. Of 8 cases in the series, 4 have apparently been cured.

The pathological criteria of leiomyosarcoma are ill-defined. However, the radiosensitivity of all myomas which present or suggest sarcomatous degeneration is low. Surgery is therefore the treatment of choice and irradiation is indicated only as a postoperative method. Of 8 patients with leiomyosarcoma who were treated by surgery and irradiation, only 1 has remained well for a period of five years.

In rhabdomyosarcoma, the criteria of radiosensitivity are nearly identical with those of leiomyosarcoma. Consequently, the results of irradiation are equally unsatisfactory. Of 3 patients with rhabdomyosarcoma (2 with involvement of a kidney and 1 with involvement of a thigh) none survived one year following irradiation.

Liposarcoma, xanthosarcoma, and idiopathic hemorrhagic sarcoma of skin (Kaposi) are also discussed. The following conclusions are appended.

In reviewing the statistical results of the therapeutic method used in this very complex group of sarcomas of the soft parts, it becomes apparent that neither surgery nor irradiation therapy has hard and fast rules. Though the general principle may be that every operable sarcoma should be removed at once, there are instances in which primary irradiation therapy may appear of greater benefit. This is true especially of some highly cellular sarcomas of the fibroblastic group, such as round-cell sarcoma, tonsil or any other location, reticulum-cell sarcoma, and large spindle-cell sarcoma, of the myxosarcomas, liposarcomas, and xanthosarcomas, and of the Kaposi sarcoma of the skin. Moreover, when biopsy is done in all these instances it appears considerably safer to attempt to remove a metastatic node *in toto* rather than to try to cut into the tumor proper. Irradiation is based on the degree of radiosensitivity. Yet radiosensitivity in the clinical sense may mean "spectacular" regression in one case and slow progressive tumor shrinkage in another. The criteria dominating such response must be closely scrutinized and classified. It will be found that in the majority of cases they may be harmonized to greater advantage with surgical indications and that therefore an association of surgical and radiotherapeutic methods in the treatment of sarcoma of the soft parts must constitute an essential and most desirable requirement. In the same sense, statistics dealing with a combination of the two methods rather than their opposition will prove of the greater clinical value.

ADOLPH HARTUNG, M.D.

RADIUM

Shedden, W. M.: Radium Treatment of Cancer of the Rectum. *Am. J. Roentgenol.*, 1935, 34, 498

Shedden reviews the literature on the treatment of rectal cancer since 1930 and reports cases treated with radium at the Huntington and Palmer Memorial Hospitals in Boston. He points out that carcinoma of the rectum, while resistant, is not insensitive to irradiation, but its response varies. He states that the doses required are very close to the margin of tolerance of normal tissue. He advises against glass emanation tubes placed in the rectal lumen for treatment of carcinoma because of the severe caustery effect. He has tried this method in thirty cases.

The author has treated eighty cases of rectal carcinoma by the intrarectal implantation of gold seeds from 1 to 3 mc. in strength and screened with 0.3 mm. of gold. In fourteen of the eighty cases the lesion was thought to be operable, but surgery was deemed inadvisable because of the general condition. Twenty-five patients were alive for periods varying from one year to six years after the last treatment. There were no five-year cures. One patient was apparently relieved for three months and one for four years. Another is alive six years following treatment but has a recurrence. In sixteen cases, less than a year has elapsed since the treatment. Therefore the results are not given. In six cases less than two years have elapsed since the last treatment. In one of these the presence of a growth is no longer demonstrable. No better results were obtained in cases treated with radium and roentgen rays than

in those in which only radium was used. In some cases colostomy was performed to facilitate the treatment.

The author mentions the work of Newman and Coryn and describes their technique in treating carcinoma of the rectum with radium. They perform colostomy and implant radium element in needles. The needles are placed in such a position that uniform radiation is obtained. They are of varying lengths. Some are placed along the line of lymphatic spread, some along the course of the hemorrhoidal vessels, some at a tangent to the growth, and others into the growth. For palliative treatment, from 0.5 to 0.8 mms. of platinum is used. This procedure requires removal of the coccyx and wide exposure of the rectal ampulla.

The author gives the opinions of Lockhart Marmery and Gordon-Watson regarding the cure of radium in the treatment of rectal cancer. Melaia and his associates are quoted as stating that they can produce radiosensitization of cancer by the intravenous injection of 2 c. cm. of a colloidal solution of uranium thorium hydride.

The author concludes that cancer of the rectum is resistant, but not insensitive to irradiation, and that some inoperable growths are made operable by such treatment. He has gained the impression that too few carcinomas of the rectum are cured by radium to warrant advising anything but surgery for the operable cases. He believes that further research is necessary to determine the correct dosage and the factors which influence it.

CLAUDE F. DIXON, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Holt, R L, Dale, Sir H, O'Shaughnessy, L, Carlton, H, Gale, H E D, and Slome, D Traumatic Shock *Proc Roy Soc Med*, Lond, 1935, 28 1473

HOLT It is customary to divide cases of traumatic shock into those of the primary and those of the secondary type, this classification depending upon the rapidity with which the state of shock develops after the injury Until recently, the only theory advanced to explain both the low blood pressure and the decreased blood volume of secondary shock was that of traumatic toxemia This theory has been criticized as no substance has been found in the venous blood from a traumatized area which will produce a state of shock Experiments on animals made by Blalock and repeated by Macdonald and Holt in which shock was produced by traumatizing one hind-limb and after death removing the hind quarters through the lower lumbar regions and then carefully dividing them symmetrically showed that the difference in the weights of the two limbs was approximately one-half the initial total calculated blood volume The fluid extravasated into the injured tissues has been shown to be a mixture of blood and plasma Such a loss is sufficient to account for the fall in the blood pressure Mild trauma produces a fall in blood pressure when all the nerve impulses have been blocked by a spinal anesthetic and when the common iliac vein has been occluded, but not when the iliac artery has been occluded The factor initiating secondary shock is a reduction in the blood volume from loss of blood and plasma into the injured tissues causing a decreased heart output and a fall in the blood pressure, which will be influenced adversely by any factor lessening the fluid reserves or retarding their passage into the circulation The prolonged vasoconstriction may further reduce the volume of the blood and in this manner set up a vicious circle

Primary traumatic shock is a circulatory collapse due to a sudden inhibition of vasoconstrictor tone of central origin The blood pressure may remain too low to record for an hour or more with no apparent ill effect if the blood supply to the medullary centers is maintained There is no reduction in the blood volume

DALE The possibility of the absorption from the injured tissue of substances which have a long-range effect and gradually break down the permeability of the capillaries so that eventually a condition of shock is reached has not been ruled out positively All the conditions of shock seen clinically have not yet been reproduced experimentally

O'SHAUGHNESSY Persons suffering from traumatic shock are very sensitive to hemorrhage whether or not the trauma caused hemorrhage In experiments on cats the withdrawal of 60 c cm of blood from an animal whose thigh was traumatized after ligation of the vessels caused death, whereas a normal cat compensated for this amount of blood quite readily

CARLTON After fifty patients in a state of shock were treated by exsanguination transfusions to remove any toxins present the method was abandoned as of little value

GALE The blood-sugar level was raised after operations and was higher and remained higher longer the more severe the shock

SLOME The fluid loss due to extravasation of blood and plasma at the site of trauma is sufficient to account for the development of shock in many cases In experiments on cats the average fluid loss was 36 per cent of the calculated total blood volume, but some of the animals lost only about 20 per cent and in these the shock was comparable both in severity and in the rapidity with which death occurred to the shock developing in the other cats Blood transfusion did not permanently relieve shock Trauma to the limb of an animal supplied with blood from a second animal produced shock in the first animal, though only nervous pathways were intact, and had little effect on the second animal Trauma to the limb of an animal under continuous spinal anesthesia, had only a slight effect on the blood pressure Records of nerve impulses from branches of the femoral nerve showed the gradual development of a discharge of centripetal nervous impulses The nervous factor is an important agent in the etiology of traumatic shock, re-inforcing the effect of fluid loss

ELIZABETH M CRANSTON

Rueckert, W The Origin of Fever in Traumatic Fat Embolism *Clinical and Experimental Researches* (Die Entstehung des Fiebers bei traumatischer Fettembolie Klinische und experimentelle Untersuchungen) *Deutsche Ztschr f Chir*, 1935, 245 36

The problem whether fever or subtemperatures are caused by the migration of fat into certain organs is taken up by the author from the bases of clinical and experimental studies All reports obtainable in the literature on traumatic fat embolism with usable data on changes of temperature were collected and subjected to a comparative analysis In all, there were sixty cases In Group I were thirty-three cases with predominance of cerebral phenomena, in Group II, thirteen cases with predominance of pulmonary phenomena, and in Group III, fourteen cases in which both cerebral and

pulmonary phenomena were pronounced. In cerebral fat embolism a gradual rise of temperature occurs which attains its highest values as the function of the brain weakens. With a fatal course, the temperature reaches an average peak of 40.1 degrees C. In pulmonary fat embolism there is a reduction of the temperature to below normal. With a long drawn-out course the temperature remains the same or is slightly raised to an average of 38 degrees C. In the forms with mixed phenomena the disease runs a medium course. There is a moderate continuous rise in temperature in agreement with the development of the other signs, similar to the conditions in cerebral fat embolism, but not reaching such great heights.

To determine whether the changes in temperature as well as the other clinical symptoms occur because of the migration of fat into certain organs, experiments were made on dogs and rabbits. The results of the experiments agreed with the clinical findings. It was found that the site at which the fat enters the circulation is of importance. Fever develops only when injections are made into the arteries of the brain, not intravenously. Therefore, the fat does not lead to the formation of substances in the organism which give rise to the fever, but the fever is the direct result of the fat entering the brain. When fat is injected into the cerebral arteries the first sign of cerebral irritation is a sudden increase of the temperature similar to the effect of poisons which produce spasm. Harnack attributes the spasmodic action of such poisons to exertion of the central inhibitory mechanisms. In a state of generally lowered brain function the fever rises to 41 degrees C. The fever is the direct result of central nervous action. In pulmonary fat embolism after the intravenous injection of fat, subtemperatures occur because of the mechanical interference with the circulation of the blood.

There was, therefore, complete agreement between the experiments and the clinical findings.
(HARNACK) FLORENCE ARMAN CARPENTIER

McFarland, J., Gleason, E. F., and Goldthrew, J.
On the Dysontogenetic Origin of Basal-Cell Carcinoma. *Am J Cancer* 1915 15 472.

A substantial number of carefully selected and histologically confirmed basal-cell carcinomas from two hospitals were plotted on two diagrams of the human face in order that their distribution might be studied with reference to their possible dysontogenetic origin through defective concurrence of the embryonal facial fissures as suggested by Glassow. The results were compared with the plottings of other supposed dysontogenetic lesions, sequestration dermoids, and mixed tumors. All three types of lesion were found to conform to about the same anatomical distribution, which is entirely different from that of the more common squamous-cell or prickle-cell carcinomas.

Occasional aberrant tumors do not seem to be of sufficient importance to discredit the theory. It is

quite possible that the low found upon the forehead and scalp and any others remote from the region of the facial fissures were not the carcinomas but cellularities they were thought to be, but tumors of different origin—carcinoma, adenoides cysticum, for example.

The authors believe that their observations support the theory of Glassow that the basal-cell carcinomas are dysontogenetic tumors which signify facial imperfections in the closure of the embryonal facial fissures.
JOSEPH K. MARAT, M.D.

GENERAL BACTERIAL, PROTOZOAN, AND PARASITIC INFECTIONS

Scott, W. J. M.: The Principles of the Treatment of Septicemia. *J. Am. M. Ass.* 1915, 105 1246.

In order to analyze the principles of treatment of septicemia the cases diagnosed as septicemia during the last nine years in the Strong Memorial Hospital and the Rochester Municipal Hospital, numbering 331, were studied.

Forty of these cases were rejected because the clinical symptoms were not definite and the blood cultures were not positive.

Four definite types of clinical course were identified: (1) the rapidly progressing variety; (2) the plateau variety; (3) transient septicemia; and (4) terminal sepsis occurring in the course of some disease.

Scott is convinced that infection of the blood occurs primarily, in the majority of cases, by way of septic thrombophlebitis in the minute vessels in the infected area and at times located in the large veins. Consequently the first principle in treatment is the eradication of all foci of infection at the earliest feasible moment. If phlebitis of one of the major veins is suspected, exploration should be made and, if found, it must be excluded from the circulation by excision or ligation of the vein.

Mortality rate was 74 per cent of the 311 cases with varying rates in the subgroups. Immunotransfusion seems of value, but it takes about eight days to organize the donor and this is often too late in severe cases.

Experience with the commercially prepared anti-bacterial serums for the pyogenic group has been disappointing. Cadham's work is cited.

In summarizing, the author says: The most important principle in the treatment of septicemia is the eradication or exclusion from the circulation of all foci that are re-infecting the blood. Transfusion as a supporting measure is also useful. None of the chemotherapeutic agents in common use have been found of great value. The development of immune serums specific for the patient's organisms and available early in the course of the septicemia is the most hopeful line of progress at present. I would suggest that a committee from the American Medical Association and the Canadian Medical Association be appointed to study this complicated problem.
CARL K. STENGER, M.D.

SURGICAL PATHOLOGY AND DIAGNOSIS

Segerdahl, E. Sternal Punctures (Ueber Sternal-Punktionen) *Acta med Scand*, 1935, Supp 64

This monograph is a report of a study of the bone marrow by means of the sternal puncture described by Arinkin in 1929. The first three chapters include a historical survey of bone-marrow studies, a description of the structure of the bone marrow, and a description of the technique of sternal puncture.

The erythrocyte count and the hemoglobin content of blood obtained by sternal puncture are the same or somewhat lower than that of the peripheral blood. It is pointed out that with increasing the amount of blood drawn from the sternal marrow the percentage of cell elements becomes lower. For this reason the author recommends that a small and constant volume (0.2 c cm) of blood be drawn for this work. Even then the cell count may vary from 10,000 to 250,000 per cubic centimeter. From a study of the morphology of bone-marrow cells, it is thought that the youngest myeloblasts are the common stem cells of the erythrocytic and granulocytic systems.

The percentage composition of the bone-marrow elements is subject to large variations. The bone marrow is of heterogenous composition, and a single puncture merely represents one small portion of the organ. Because of appreciable differences in the

differential counts from the marrow of the same individual at different times, too much time and care in the actual counting is unwarranted. The cover-slip technique gave better distribution of the cells than the glass-slide smear, the latter giving lower values for normoblasts and erythroblasts.

In older persons there is a tendency toward lower values in the bone-marrow elements than in young persons. The results are reported in cases of patients with various diseases of the blood. In hypochromic anemia a hyperplastic marrow was found with an increase in the precursors of the erythrocytes. In pernicious anemia there was an increase in the megalo-blasts, which disappeared during the remission. In cases of myeloid and lymphatic leukemia there was an increase in the myeloid tissue and lymph respectively. Sternal puncture is considered of value in differentiating neutropenia and aleukemic leukemia.

In conclusion, the author states that sternal puncture is of considerable diagnostic value in pernicious anemia and aleukemic leukemia. For the determination of atrophy of the bone marrow, the trephining method of Seyfarth is preferable. Because of the variations in the results of sternal puncture, a positive finding is considered to be of much more value than a negative one. For example, a single puncture yielding material devoid of cells is certainly not conclusive evidence of atrophy of the bone marrow.

HOWARD L. ALT, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THE ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

- The treatment of head injuries. C P SYMONDS and G. JEFFERSON. *Brit M J*, 935, 2: 677.
- The treatment of fractured skulls. C O BATES. *Am J Surg*, 1935, 50: 66.
- Leontine osteoma. J A JAMES. *Proc Roy Soc Med Lond*, 935, 28: 1580.
- Chondroblastoma of the basilar plate of the skull and ependymoma physalisphora sphenooctipitalis: suggestions for diagnosis and surgical treatment. W P VAN WAGEN. *Arch Neurol & Psychiat*, 935, 54: 543. [112]
- Osteomyelitis of the frontal bone. J A JAMES. *Proc Roy Soc Med Lond*, 935, 28: 1580.
- The influence of bone structure on pericard lesions of the temporal bone. B J KOWITZKY. *J Med. Soc. New Jersey*, 1935, 38: 518.
- Papillary cystadenoma lymphomatous of the parotid gland. C OOSTER. *Am J Surg*, 1935, 50: 57.
- The management of parotid tumors. C B STEWART. *Am J Surg*, 935, 50: 18.
- A new method of removing tumors from the pharyngeal prolongation of the parotid gland. R LEXNER. *Prose med.*, Par. 935, 43: 1449.
- Salivary gland tumor. D C L. FRIEDWILLIG. *Lancet*, 1935, 279: 769.
- Internal derangement of the temporomandibular joint. D O. LEAVITT. *Northwest Med*, 1935, 34: 393.
- Osteitis chronica of the mandible and maxilla. G T HAMMERT. *Proc Roy Soc Med Lond*, 935, 28: 1676.
- Late osteoarthromatosis of the jaw. J GUININ. *Prose med.*, Par. 935, 43: 514.
- Infected cysts of the upper jaw as a source of infection of the antrum, also a contribution on the question of the regeneration of the bony floor of the antrum. A LACHENKAT. *Dentische Zahn- u. Mund Heil*, 935, 2: 49.
- Congenital melanocarcinoma of the upper jaw. A DOUTS and B SZABO. *Monatschr f. Kinderheilk*, 1935, 63: 204.
- Resection of the upper jaw for carcinoma. W F MACPHER. *Am J Surg*, 935, 50: 2.
- A case of bilateral adenocarcinoma of the lower jaw. K W WOODRIDGE. 1934. *Minerster IV u. Dendodont*, Dissertation.

Eye

- The functional examination of the eye. R ARGENTI. *Scienza med*, 1935, 43: 604.
- Hereditary blindness in Minnesota. H D LANE. *J Minnesota Stat M Am*, 935, 3: 306.
- Regulatory blindness, eye diseases, and their causes in the land of Canaan. N I SHUKKIN. *Brit. J Ophthalm*, 1935, 9: 548.
- Myopia and exophthalmos. J L PARCER. *Arch. Ophthalm*, 1935, 14: 644.

- Light stimuli of minimal measured duration as a means of perimetry. L L MAYNE. *Arch Ophthalm*, 1935, 14: 542.
- Subjective "lightning streaks." R F MOORE. *Brit J Ophthalm*, 935, 9: 545.
- Congenital and acquired deficiencies of fusion. A BIRLSCHOWSKY. *Am J Ophthalm*, 1935, 4: 925.
- Measurement (rheumatometry) of the antero-posterior diameter of the eyeball (a size correlated with the measurement of the cornea) following cataract. D KATZ and A C LEMONT. *Am J Ophthalm*, 1935, 18: 914.
- Penetrating wound of the eye: cure of prolapsed vitreous without operation. J H. BRANOWITZ. *Brit M J*, 1935, 2: 785.
- The slopes in relation to eye disease. E R. CHAMBERLAIN. *Proc Roy Soc Med Lond*, 935, 28: 158.
- Nasal sinusitis and infections of the eyeball. E WARREN-WILLIAMS. *Proc Roy Soc Med Lond*, 1935, 28: 158.
- Rhinitis pyocyanosa infection of the eye. W W LAYCOCK. *Am J Ophthalm*, 1935, 28: 950.
- The use of lecithin in eye diseases. S TIERNEY. *Brit M J*, 1935, 2: 785.
- The use of Coley's mixed toxins in ophthalmology: further observations. J LEVITT. *Arch Ophthalm*, 1935, 14: 554.
- Bilateral buphthalmos associated with severe glaucoma, report of a case. C A. FOLLEA. *Arch Ophthalm*, 1935, 14: 630.
- Closure of the angle of the anterior chamber in glaucoma, its bearing on operations for the relief of hyper-tension. M U THORNDON. *Arch. Ophthalm*, 1935, 14: 557.
- Post-traumatic eye surgery. A D RUTENFRANZ. *Surg Clin North Am*, 935, 5: 949.
- Posture and postoperative treatment in eye conditions. J B HAMILTON. *Australian & New Zealand J Surg*, 935, 5: 30.
- Trachoma as an endemic disease in Egypt. F MANSOUR. *Am J Ophthalm*, 1935, 28: 951.
- The role of bacterium granulosa in trachoma. A R. ROSENBERG. *Arch Ophthalm*, 935, 24: 610.
- Cancer of the eyelid, its diagnosis, prognosis, and treatment. R C NICOLAI. *Bol. inst. de clin. quim. Univ. de Buenos Aires*, 1935, 1: 94.
- A bullet in the orbit. G E. THORNTON. *Canadian M. Am J*, 935, 33: 424.
- Four cases of orbital cellulitis secondary to nasal disease treated by simple incision. T B LAYTON. *Proc. Roy Soc Med Lond*, 935, 28: 1569.
- Strabismus in children corrected by refractive alone. G P GUNSON. *Am J Ophthalm*, 935, 5: 944.
- The management of strabismus. R F TRAW. *Ophth State M J*, 1935, 31: 749.
- The Hable technique for operation on the lachrymal sac. B J THORNTON and C F MASCARENHO. *Rev med Lat-Am*, 935, 10: 118.

BIBLIOGRAPHY OF CURRENT LITERATURE

- Marginal keratitis with ectasia, cure. J LIJÓ PAVIA and M DUSSELDORP Sud-Americana, 1935, 10 210
 Arch Ophth, 1935, 14 612
 Acute metastatic syphilitic corneal abscess B A KLIEN
 Arch Ophth, 1935, 14 587
 Corneal ulcers due to a common allergen. S J PARLATO
 Arch Ophth, 1935, 14 587
 The circulation of the aqueous IV Reabsorption of colloids J S FRIEDENWALD and H F PIERCE. Arch. Ophth., 1935, 14 599
 Tuberculous uveitis C S O'BRIEN J Missouri State M Ass, 1935, 32 392
 Empirical treatment of uveitis F H NEWTON Arch Ophth, 1935, 14 618
 Uveal sarcoma—malignant melanoma T L TERRY and J P JOHNS Am J Ophth., 1935, 18 903 [113]
 Cataracts and dinitrophenol D G COGAN New England J Med, 1935, 213 854
 A comparison of intracapsular methods of cataract extractions. I HARTSHORNE Am J Ophth, 1935, 18 835 [115]
 Modifications of the surgical procedure in cases of cataract complicated by economic factors and by general constitutional disease G A POCKLEY Australian & New Zealand J Surg, 1935, 5 122
 A special clamp for holding lid sutures in cataract operations W D HORNER Am J Ophth, 1935, 18 957
 Detachment of the choroid after cataract extraction, clinical and experimental studies, with a report of seventy-five cases C S O'BRIEN Arch Ophth, 1935, 14 527 [115]
 Melanoma of the choroid, the prognostic significance of argyrophil fibers G R CALLENDER and H C WILDER Am J Cancer, 1935, 25 251
 Melanoma of the choroid with secondary deposits in the liver J I H DALLY Brit. M J, 1935, 2 624
 Dilated and tortuous retinal vessels, report of a case of congenital arteriovenous communication D KRAVITZ and R. I LLOYD Arch Ophth, 1935, 14 591
 Traumatic detachment of the retina C N SPRATT J-Lancet, 1935, 55 667
 A simple needle for diathermy treatment of retinal detachment. H S GRADLE. Am J Ophth, 1935, 18 956
 Scleral transillumination for perfect localization of tear in the treatment of detached retina. J LIJÓ PAVIA Rev oto-neuro oftalmol y de cirug neurol Sud-Americana, 1935, 10 201
 Ocular complications in neuroblastoma. P J LEINFELDER Am J Ophth, 1935, 18 938
 A case of endothelioma of the optic nerve sheaths H B STALLARD Brit J Ophth, 1935, 19 576
- ### Ear
- The evolution of otology J E BROWN, Sr.
 West Virginia M J, 1935, 31 448
 Advances in the treatment in otology R S STEVENSON Practitioner, 1935, 135 549
 The "aural" or "acoustic" method of treating deafness. H. C. BALLENGER and B A PATTERSON Arch Otolaryngol, 1935, 22 410
 The treatment of otosclerotic and similar types of deafness by the local application of thyroxin A A GEAY Proc. Roy Soc. Med, Lond, 1935, 28 1447 Laryngoscope, 1935, 45 741 J Laryngol & Otol, 1935, 50 729 [115]
 The differential diagnosis of imaginary diseases of the ear, nose, and throat. O GILLILAND J Missouri State M Ass., 1935, 32 304
 A case of spontaneous perforation of the eardrum. P PANNETON Laryngoscope, 1935, 45 786
- Two cases of pre-auncular fistula. R KLABER. Proc. Roy Soc. Med, Lond, 1935, 28 1553
 Disease of the hip complicating otogenic sepsis N LESHIN Arch Otolaryngol, 1935, 22 466 [116]
 The operative treatment of vertigo W M MOLLISON, Proc Roy Soc. Med, Lond, 1935, 28 1597
 The mortality of mastoiditis and cerebral complications, with a review of 3,225 cases of mastoiditis with complications M M KAFKA Laryngoscope, 1935, 45 790
 A series of cases of radical mastoidectomy with skin graft. D S CUNNING Laryngoscope, 1935, 45 776
 The diagnosis and differential diagnostic data on specific types of suppuration in the petrosal pyramid S J KOPETZKY Arch Otolaryngol, 1935, 22 403 [116]
- ### Nose and Sinuses
- Physiological rest of the nose. E LER. Wood J Med Soc New Jersey, 1935, 32 571
 The treatment of hay fever and hyperesthetic rhinitis by ionization. L M HURD Arch Otolaryngol, 1935, 22 416
 Some results obtained in the treatment of atrophic rhinitis (ozena) R. P WRIGHT Canadian M Ass J, 1935 33 392
 Plastic operation on the nose O IVANISSEVICH and R. C FERRARI Bol inst de clin. quir, Univ de Buenos Aires, 1935, 11 50
 New instruments for nasal reconstructive surgery A J BARSKY Arch Otolaryngol, 1935, 22 487
 The causes of faulty interpretation of roentgenograms of the sinuses F M LAW Arch Otolaryngol, 1935, 22 435
 Sinusitis in children G C. SCANTLEBURY Brit. M J, 1935, 2 781
 Chronic sinusitis in children. F SMITH J Michigan State M Soc, 1935, 34 593
 Allergic rhinosinusitis. E RICCITELLI and Y FRANCHINI Semana med, 1935, 42 843
 Sinusitis allergy and the common cold, a conception of their relationship E C SEWALL. Arch Otolaryngol, 1935, 22 425
 Surgical indications in diseases of the nasal sinuses due to allergy W V MULLIN Surg Clin North Am, 1935, 15 830
 Osteoma of the nasal accessory sinuses T E CARMODY Ann. Otol, Rhinol & Laryngol, 1935, 44 626 [117]
 The present status of radical sinus surgery E R FAULKNER Laryngoscope, 1935, 45 782
 The treatment of double frontal sinusitis J GARZONI, B CASTANEDA, and M O GOMES VEIGA. Rev méd Lat-Am, 1935, 20 1114
 Late changes in the mucosa of the frontal sinuses and nose of dogs following ionization B J McMAHON Arch Otolaryngol, 1935, 22 454
 Stereoscopic roentgenograms of the sphenoid sinuses J W FERGUSON Arch Otolaryngol, 1935, 22 432
- ### Mouth
- Some congenital anomalies of the oral cavity B SNEL-MIRE. Texas State J. M., 1935, 31 375
 A practical method for the control of dangerous infections in oral surgery J W SEYBOLD Colorado Med, 1935, 32 778
 An early case of actinomycosis of the tongue. S von KREUDENSTEIN Deutsche Zahn- u. Heilk., 1935, 2 439
 Extensive hemangioma of the tongue, cheek and floor of the mouth, operative treatment and operative recovery ORATOR. Zentralbl f Chir, 1935, p 2219

- Sarcoma of the tongue, tonsil, and soft palate T J HOLTZ. *South M. & S.* 1935, 97: 354.
 Tumors of the mouth and jaws W M. KAPRIO. *Texas State J. M.* 1935, 31: 370.
 Malignant disease of the mouth and accessory structures G B NEW. *Am J Surg* 1935, 50: 45.
 Sequelae following injection anesthesia in the mouth, a bacteriological investigation H ROSEN and H J R. KISZPATICH. *Proc Roy Soc. Med Lond* 1935, 28: 1670 [116]

Pharynx

- Streptococcal infection of the site of operation after the removal of the tonsils and adenoids J W ENDERSON. *J Laryngol & Otol* 1935, 55: 754.
 Carcinoma of the upper pharynx C L MARTIN. *Am J Surg* 1935, 50: 35

Neck

- Unusual tumor of the neck W F DUTTON and N C. PARKER. *South M J* 1935, 48: 205.
 Certain observations on the treatment of cervical metastases in cancer of the mouth R G HUTCHINSON. *Glasgow M J* 1935, 134: 196.
 Post-cricoid carcinoma treated by interstitial radium. J A JAMES. *Proc Roy Soc. Med Lond* 1935, 48: 1579.
 Unilateral block resection of the lymph nodes of the neck for carcinoma E FRANK. *Am J Surg* 1935, 50: 27.
 Tracheotomy for obstruction in malignancy of the upper airways A LLOYD. *Am J Surg* 1935, 50: 53.
 Some problems in thyroid disease F E ROGERS. *West J Surg Obst. & Gynec.* 1935, 43: 576.
 A comparison of basal metabolic rates obtained by gasometric analysis and formulas T J F FRANK. *Med J Australia*, 1935, 2: 297 [116].
 Myxodermas, spontaneous and postoperative S D COVELL. *West J Surg Obst. & Gynec.* 1935, 43: 564.
 Hypothyroidism as a problem in women C H DAVIS. *Am J Obst. & Gynec.* 1935, 50: 570.
 Hypothyroid heart disease: report of cases J W BENTLEY. *Am J Med Sci* 1935, 54: 262.
 Hyperthyroidism and heart disease T J REAN. *Pennsylvania M J* 1935, 30: 10.
 The etiology and management of recurrent hyperthyroidism G S PARKER. *West J Surg Obst. & Gynec.* 1935, 43: 542.
 Thyroidectomy for hyperthyroidism with marked depressive psychosis LILL D LOOM. *West J Surg Obst. & Gynec.* 1935, 43: 543.
 The production of goiter by the use of cabbage C. WINKLIN. *Schweden med Wchnskr* 1935, 55.
 Riedel's struma A M BOYDOR, F A COLLIER, and J C BOONER. *West J Surg Obst. & Gynec.* 1935, 43: 347.
 Stenosis of the trachea with special consideration of the variety produced by goiter C SCHROEDER. *Internat. Fortbild.* 1935, 26 [117].
 The deadly trend of goiter and its cure W D HADLOCK. *Kentucky M J* 1935, 23: 444.

- Twenty years' experience in the management of goiter E. C. MOORE and H. D. VAN FLEET. *West J Surg Obst. & Gynec.* 1935, 43: 435.
 Criteria of the operability for goiter E. COCKRE. *Minnesota Med* 1935, 18: 61.
 Tuberculosis of the thyroid gland R. S. DENMON. *Surg Clin North Am* 1935, 15: 835.
 Thyroglossal cyst of the tongue A. J. WYCKOFF. *Proc. Roy Soc. Med Lond* 1935, 28: 572.
 Cancer of the thyroid gland M. BLOCK. *Rev. med. d. Rosario*, 1935, 31: 735.
 The surgical treatment of thyroid disease; an analysis of 500 consecutive cases D H POSE. *J. Med. Ass. Georgia*, 1935, 24: 254.
 Total thyroidectomy for intractable heart disease, a summary of two and one-half years' surgical experience D D BENTLEY. *J. Am. M. Ass.* 1935, 105: 1704.
 Avertin in thyroid surgery, sixty consecutive cases K M HEARD. *Canadian M. Ass. J.* 1935, 32: 294.
 Hyperparathyroidism R. C. WICK. *Minnesota Med* 1935, 18: 664.
 The surgery of subtotal parathyroidectomy O COVE. *New England J. Med* 1935, 3: 470. [117].
 Contact ulcer of the larynx C. JACKSON and C. L. JACKSON. *Arch. Otolaryngol.* 1935, 23: 1. [117].
 Classification of the cartilages of the larynx and its relationship to some types of laryngeal disease H M. TAYLOR. *Ann. Otol., Rhinol. & Laryngol.* 1935, 44: 62. [118].
 Laryngoscopy in mass, and notes on laryngeal and in animals A B KETTER. *Watkins Australia & New Zealand J. Surg.* 1935, 3: 128.
 Recent granuloma of the larynx following anastomosis poisoning E. WATSON-WILLIAMS. *Proc. Roy Soc. Med Lond* 1935, 28: 573.
 Xanthomas of the pharynx and larynx G B NEW. *Arch. Otolaryngol.* 1935, 23: 440.
 Malignant disease of the larynx C. JACKSON and C. L. JACKSON. *Am J Surg* 1935, 50: 3.
 Clinical and anesthesiopathological studies of laryngeal cancer in the aged PORTMAN, MOONSHAN and RABZAN. *Presse med. Par.* 1935, 43: 2166. [118].
 Carcinoma of the larynx: a study of 33 cases W V MOLLIN and L. L. DAMEL. *Surg. Clin North Am.* 1935, 15: 851.
 Two cases of early carcinoma of the larynx and a number of cases of so-called adenoma of the bronchi apparently cured by diathermy J D KICKER. *Laryngoscope*, 1935, 45: 760.
 The treatment of cancer of the larynx and hypopharynx R. S. PORTMAN. *Canadian M. Ass. J.* 1935, 23: 413 [118].
 Primary results of tuberculous treatment in cancer of the larynx and hypopharynx at the Radiological Clinic of the University of London, from 1931 to 1933 L. ELLISON. *Radiology* 1935, 21: 267 [119].
 The surgical treatment of carcinoma of the larynx and its results O PORTMAN and J DENSON. *Endocrinol. Clin.* 1935, 3: 301.
 A series of cases of total laryngectomy for cancer. R. E. BUCKLEY. *Laryngoscope*, 1935, 45: 769.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

- An improved technique for cephalography R A MOYER. *Australia & New Zealand J. Surg.* 1935, 5: 55.
 An improved apparatus for cephalography adaptable to ventriculography S H ELLER and T J C STONE. *Am J Roentgenol.* 1935, 34: 457.

- The technique of ventriculography T BLANCHARD. *Arch. Ital. di chir.* 1935, 40: 373.
 Functional changes in the brain of the dog following reduction of the cerebral blood supply II. Disturbance of the conditioned reflexes after ligation of the arteries L A AMMONY. *Arch. Neurol. & Psychiat.* 1935, 34: 699.

BIBLIOGRAPHY OF CURRENT LITERATURE

- The importance of the pathological anatomy in cases of traumatic brain changes for the practical estimation of injury in the living patient with injury of the head. A. Escher, *München med Wchnschr*, 1935, 2: 1164 [120]
- Hydrocephalus (dura ureteral drainage). W. J. Gallagher, *Missouri State M A*, 1935, 32: 402
- Diabetes insipidus and Froehlich's syndrome associated with encephalitis of the hypothalamic region. R. A. Moor and E. H. Crichton, *Arch Neurol & Psychiat* 1935, 34: 525
- Brain abscess complicating acute otitis media. J. R. Praromy, *Kentucky M J*, 1935, 33: 465
- Contribution to the knowledge of traumatic subdural hematomata on the convexity. Y. Miyake, *Acta chirurg Scand*, 1935, 77: 1
- Intracranial chondroma, report of a case. I. T. Furlow, *Arch Neurol & Psychiat* 1935, 34: 530
- Pineal teratomas, with the report of a case of operative removal. J. J. McLean, *Surg, Gynec. & Obst* 1935, 61: 531
- The diagnosis of surgical lesions of the brain, an analysis of 100 consecutive cases. W. J. Garret, *Surg Clin North Am*, 1935, 15: 909
- The diagnostic value of defects in the visual fields and other ocular disturbances associated with supratentorial tumors of the brain. J. H. Gross and S. M. Squire, *Arch Ophthalmol*, 1935, 14: 125
- Multiple nodular meningioma associated with neurofibromatosis. J. M. Cresvino, I. Roca, and A. Bruto de Esposito, *An Fac de med de Montevideo*, 1935, 20: 151
- Multiple meningiomas. Report of a case in which three intracranial meningiomas were removed successfully. J. E. Raar and W. McK. Craig, *Arch Surg*, 1935, 31: 601
- The treatment of trigeminal neuralgia. Kirschner, *München med Wchnschr* 1935, 1: 1067
- Results of removal of the stellate ganglion in the treatment of traumatic facial paralysis. J. J. Garret and C. Viro, *Bol y trab Soc de ciruj de Buenos Aires* 1935, 19: 777

Spinal Cord and Its Coverings

- Simple technique for establishing spinal fluid drainage. G. B. Lawton and O. D. Boyer, *South M J* 1935, 28: 949
- Osteoarthropathy of syringomyelia in man. M. Viro, *Arch Neurol & Psychiat* 1935, 34: 530
- Spinal cord tumors. An analytical review of thirty six cases. A. T. Brown, *Surg Clin North Am* 1935, 15: 1047
- The fate of 141 patients who suffered from tumors or tumor-like syndromes of the spinal cord. I. Rasnolsky, *Arch Klin Chir*, 1935, 182: 231

Chest Wall and Breast

- Congenital defect of the sternum. A. Jordan, *Lancet*, 1935, 229: 877
- Some dramatic thoracic operations. J. Alexander, *J Thoracic Surg*, 1935, 5: 1
- The sex hormones in the physiology and pathology of the breast. E. Dahlqvist, *Nord med Tidskr*, 1935, 5: 745
- The pendulous hypertrophic breast, comparative values of present day methods of repair and the procedure of choice. J. W. Malintak, *Arch Surg*, 1935, 31: 587 [124]

A method of accurately determining the vertebrae to be exposed during lumpectomy. H. K. Bondar, *Neurol Inst New York*, 1935, 4: 300

Peripheral Nerves

- The physiopathology of paralysis of the ulnar nerve, the results of suture following complete division. R. Cisneros, *Bol y trab Soc de ciruj de Buenos Aires*, 1935, 19: 683
- Late or tardy ulnar nerve paralysis. A. J. Davidson, *J Bone & Joint Surg*, 1935, 17: 121
- The malignant tumors of the peripheral nerves. A. P. Stout, *Am J Cancer*, 1935, 25: 1 [122]

Sympathetic Nerves

- The peripheral sympathetic nervous system. H. H. Woolf, *Brit J Surg*, 1935, 23: 425
- Horner's syndrome, a report of ten cases. R. N. De Jovic, *Arch Neurol & Psychiat*, 1935, 34: 734
- Malignant tumor (sympathicoblastoma) of the superior cervical ganglion. F. F. Lamb, *Brit J Surg*, 1935, 23: 474
- Posterior approach to the stellate ganglion. H. Garret, *Bordeaux chir*, 1935, p. 322
- Resection of the sympathetic lumbar ganglia in post-traumatic disturbances. R. Massart, *Bull et mém Soc d chirurgiens de Par* 1935, 27: 457
- Operations on the sympathetic nervous system in the treatment of epispasmic paralysis. P. Wertheimer, *Arch franco belges de chir*, 1934, 34: 267
- The rôle of sympathectomy in the treatment of peripheral vascular disease. R. I. Harris, *Brit J Surg*, 1935, 23: 474
- Lumbar sympathectomy in the treatment of circulatory diseases. M. M. Crichton, *Indian M Gaz*, 1935, 70: 553
- The chemico-anesthetic sympathectomy of Olivares. L. Alonso Garcia and E. Lleras, *Rev Medica*, 1935, 6: 20
- The results of sympathectomy, an analysis of the cases reported by fellows of the Association of Surgeons. J. P. Ross, *Brit J Surg*, 1935, 23: 433

Miscellaneous

- Generalized neurofibromatosis and pregnancy. I. R. Hersholt, *Louvot, and Richon*, *Presse méd*, Par, 1935, 43: 1449
- The surgery of pain. W. F. Stepmont, *Genesek Bl*, 1935, 33: 103 [122]

SURGERY OF THE THORAX

- The pathogenesis of galactorrhea, with remarks on the hormonal processes in physiological lactation. E. J. Kraus, *Arch f Gynæk*, 1935, 159: 380
- The significance of bleeding or discharge from the nipple. J. E. Stowers, *Surg, Gynec. & Obst*, 1935, 61: 537
- The normal development of the mammary glands of virgin female mice of ten strains varying in susceptibility to spontaneous neoplasms. W. U. Gardner and L. C. Spence, *Am J Cancer*, 1935, 25: 282
- Benign and malignant tumors occurring in the breast. G. Crile and A. Graham, *Surg Clin North Am*, 1935, 15: 783

Carcinoma of the breast in New Hampshire. J C. DOVERMAN. New England J Med 1935, 5: 752
 Aspiration of the left breast for adenocarcinoma. M. SCALFIERA. Zentralbl f. Chir 1935, p. 104
 Specific protein therapy as an adjunct to surgery in cancer of the breast. H. ROBERT-DUVAL. Rev de chir. Par 1935, 54: 604

Trachea, Lungs, and Pleura

Derrison on obstructions of the trachea. L. COLLETON, F. C. UNDERSON, H. KIMPT, E. A. PETERA, and others. Proc. Roy. Soc. Med. Lond 1935, 28: 387 [124]
 The injection of sodium oil into the bronchial tree; passive method through the nose. H. M. GOODPASTER. J. Med. Cincinnati, 1935, 10: 419
 An instrument for the removal of a bead from the bronchus. S. SALTZBERG. Arch. Otolaryngol. 1935, 1: 492
 Bronchial dilatation simulating a cavity. F. BRANCOU, R. LUCIAT, and A. MARTIN. Presse med. Par 1935, 43: 1537
 Herdation of lung tissue into a bronchus. M. S. LLOYD. Am. J. Surg. 1935, 50: 90
 A note on the thoracoscope in the treatment of spontaneous pneumothorax. L. N. MACDONALD. Irish J. M. Sc. 1935, 5: 408
 Congenital cystic lung or emphysematous bulla. R. POMERANTZ. Am. J. Surg. 1935, 50: 68
 Bronchoscopy in the diagnosis of asthma complicating pulmonary tuberculosis. D. H. BALLOU. J. Thoracic Surg. 1935, 5: 95
 Surgical treatment of severe bronchial asthma. H. GONARD. Arch. franco belges de chir. 1934, 34: 354
 The development and occurrence of atelectasis in pulmonary tuberculosis. N. WINTERMAN. Acta radiol. 1935, 6: 53 [125]
 Surgery in the treatment of pulmonary tuberculosis. R. M. JAMES. Canadian M. Ass. J. 1935, 33: 250
 Pneumothorax by open operation. F. TORRE. J. Thoracic Surg. 1935, 5: 90
 Phrenic nerve resection as an adjunct to artificial pneumothorax. W. D. ANDERSON. Texas State J. M. 1935, 31: 708
 Thoracoplasty technique under local anesthesia. R. FROCHEROT. Semaine med. 1935, 4: 771
 A new method of surgical treatment of pulmonary tuberculosis: anterior thoracoplasty of Monaldi. E. BERNARD. Presse med. Par 1935, 43: 358
 Repeated thoracoplasty. P. DREYFUS-LE FORTE. Presse med. Par 1935, 43: 1473 [126]
 The pseudotuberculous forms of malignant lymphogranuloma. I. GOLA, L. DAVIELLO, and M. HANASSETTI. Arch. ital-chir. de l'appar. respir. 1935, 1: 283 [127]
 Pyothorax due to mesopneumothorax infection. R. A. FLACK. Arch. Int. Med. 1935, 55: 700
 The treatment of pulmonary abscess by alcohol injection. R. SANCHEZ and E. MANSOUR. Presse med. Par 1935, 43: 55
 Pulmonary abscess, with special reference to the packing treatment of Coombs. T. C. CASE. New York State J. M. 1935, 33: 98
 Pulmonary abscess and pulmonary gangrene, an analysis of ninety cases observed in two years. B. S. KLINE and S. S. BAKER. Arch. Int. Med. 1935, 55: 753
 Congenital bronchiectasis in children. G. S. RITTER. Radiology 1935, 3: 405
 The recurrence of bronchiectasis following some ligatures of the bases of a lobe. H. L. BRYE. J. Thoracic Surg. 1935, 5: 18

A contribution to the surgical treatment of pulmonary suppurations. R. GALLI. Rif. chir. 1935, 21: 117 [128]
 Lobectomy for bronchiectasis. C. J. O. BARNES and C. A. M. KENNY. Australian & New Zealand J. Surg. 1935, 5: 183
 Bronchiectatic lobectomy for bronchiectasis in Sauerbrock's Clinic. L. E. BORDO. Prog. de la chir. Madrid, 1935, 23: 605
 A further study of anastomosis of the bronchus. R. KRAMER and M. L. SOX. Ann. Otol. Rhinol. & Laryngol. 1935, 44: 861 [127]
 The primary carcinoma of the lung. R. H. JARR. J. Lab. & Clin. Med. 1935, 20: 2237 [127]
 Primary carcinoma of the lung: etiological concepts. E. J. SHAW. J. Lab. & Clin. Med. 1935, 20: 637
 Internal pneumothorax, results of 110 consecutive operations. F. G. CHANDLER. Lancet, 1935, 229: 879
 Pneumectomy. O. IVANOFF and R. C. FERRAN. Bol. Inst. de chir. Univ. de Buenos Aires, 1935, 1: 5
 Pneumectomy for malignant and suppurative disease of the lung. R. H. OYENBOLL. J. Thoracic Surg. 1935, 5: 54 [129]
 Total pneumectomy: a proposal of an operative technique, extrapleural pneumotomy. R. C. FERRAN. Bol. Inst. de chir. Univ. de Buenos Aires, 1935, 1: 31
 A support for the chest following removal of the ribs. Know. Zentralbl. f. Chir. 1935, p. 322
 The evaluation of interpleural adhesions by oblique roentgenography. C. HANCOCK and C. B. PETER. J. Thoracic Surg. 1935, 5: 81
 Fluorocopy following division of pleural adhesions. A. ALVAREZ FEX. (Voz). Med. Ibera, 1935, 29: 313
 Pleural shock. W. F. HAMILTON. Canadian M. Ass. J. 1935, 33: 570
 A technique of drainage for non-tuberculous purulent pleurisy. TALBOT and DORAU. Rev. de chir. Par 1935, 43: 614
 Interlobar pleural effusions. B. P. STIVELMAN. Am. J. Roentgenol. 1935, 34: 475
 Pleural empyema in children. G. GERSLOR. Acta chirurg. Scand. 1935, 77: 45 [129]
 Acute empyema in children. J. M. MASOV. J. Am. M. Ass. 1935, 95: 1514
 The treatment of tuberculous empyema. M. P. SORLEY. Brit. M. J. 1935, 2: 659

Heart and Pericardium

The surgical treatment of angina pectoris. C. PASTOR. Soto. Medicina, Madrid, 1935, 6: 33
 Chronic constrictive pericarditis treated by pericardial resection. P. D. WATTS. Lancet, 1935, 20: 594-597 [129]
 Pericardial pericarditis, a report of five cases in which treatment was by pericardectomy and review of the literature from April 30, 1927 to January 1, 1934. A. M. SUTCLIFF and N. WHITLOW. Arch. Surg. 1935, 31: 373 [130]
 Primary sarcoma of the pericardium. L. G. STEIN and C. S. HIGLEY. J. Am. M. Ass. 1935, 95: 1515

Esophagus and Mediastinum

The symptomatology of esophageal diverticula. C. H. BIER. Med. Welt, 1935, p. 1099
 Perforation of the esophagus by swallowed foreign bodies. J. E. O. MCGINNON and J. H. MATHER. Lancet, 1935, 229: 593 [130]
 Esophageal obstruction. H. S. SOUTHER. Brit. M. J. 1935, 2: 777

Polypus of the esophagus which caused fatal tracheal obstruction. E WATSON-WILLIAMS *Proc. Roy Soc. Med, Lond*, 1935, 28 1574.

Congenital shortness of the esophagus A J WRIGHT *Proc Roy Soc Med, Lond*, 1935, 28 1572

Specimen and skiagrams of a case of congenital shortness of the esophagus with stricture. A J WRIGHT *Proc Roy Soc. Med, Lond*, 1935, 28 1572

Spasmodic stricture of the esophagus J G FERNÁNDEZ, M A. CARRI, and J M CAMANA. *Semana méd.*, 1935, 42 694.

The treatment of acute corrosive esophagitis S BÉLIVOFF *Presse méd.*, Par, 1935, 43 1564.

Cancer of the esophagus. F W DIXON *Ohio State M J*, 1935, 31 745

Mucous and submucous cancer of the esophagus M GONZÁLEZ LOZA. *Rev méd d Rosario*, 1935, 25 806

A case of carcinoma of the esophagus with rupture into the trachea C E BROOKS *Canadian M Ass J*, 1935, 33 423

Cervical esophagectomy for carcinoma. SIR H. NEWLAND *Australian & New Zealand J Surg*, 1935, 5 187

Tuberculosis in the production and the diagnosis of the mediastinal syndrome J T LAFUENTE. *Prog de la clin.*, Madrid, 1935, 23 584.

Miscellaneous

A new diagnostic procedure for diaphragmatic hernia, the "Seidlitz powder test." D BALL. *J Am M Ass*, 1935, 105 1267

Diaphragmatic hernia with obstructing symptoms H K PAVY *Australian & New Zealand J Surg*, 1935, 5 176

Diaphragmatic hernia in children H D STEPHENS *Australian & New Zealand J Surg*, 1935, 5 161

Diaphragmatic hernia in adults, a case of traumatic diaphragmatic hernia. W A. HAILES *Australian & New Zealand J Surg*, 1935, 5 173

Traumatic diaphragmatic hernia of the stomach, the small bowel, colon, and omentum, surgical intervention A B IRTIG and E CEVIN *Semana méd.*, 1935, 42 435

Sudden death in unrecognized diaphragmatic hernia I. HAMILTON *Australian & New Zealand J Surg*, 1935, 5 181

Benign tumor of the diaphragm leading to a diagnostic error L GRAVANO *Semana méd.*, 1935, 42 705

Sarcoma of the thorax adherent to the pleura and lung in a four-year-old child. L HAUTEFORT *Bull et mém Soc. d chirurgiens de Par*, 1935, 27 460

Spinal anesthesia in thoracic surgery H J SHIELDS *Anes & Anal*, 1935, 14 193

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

The operative repair of sliding hernia of the sigmoid R. R. GRAHAM. *Ann Surg*, 1935, 102 784.

The diagnosis of abdominal wall tumors T KOERNER. *Beitr z klin Chir*, 1935, 162 25

Fibroma of the abdominal wall. C A BREA *Bol inst de clín quir*, Univ de Buenos Aires, 1935, 11 100

Primary streptococcus peritonitis R. E SMITH. *Clifton Med Bull*, Clifton Springs, New York, 1935, 19 15

Secondary peritoneal echinococcus infestation A. CHIFFLET and H A ARDAO. *An. Fac. de med. de Montevideo*, 1935, 20 122

The results of serum treatment of peritonitis. O KAPEL. *Zentralbl f Chir*, 1935, p 2053

Mesenteric vascular occlusion J DOUGLAS *Ann Surg*, 1935, 102 636 [132]

Mesenteric infarcts A AMELINE and C LEFEBVRE *J de chir*, 1935, 46 481 [132]

A case of mesenteric cyst. G MUZZARELLI. *Polclin*, Rome, 1935, 42 sez prat 1950

Lymphangioma and hemangioma of the mesentery C HERMAN and L SOLOFF *Am J Surg*, 1935, 30 125

Lipoma of the mesentery A A PUNTEL. *Semana méd.*, 1935, 42 852

Torsion of the omentum. H G GOERITZ 1934 Kiel, Dissertation.

Primary abscess of the omentum. R W FRENCH. *New England J Med*, 1935, 213 857

Mesodermal tumors of the omentum, mesentery, and retroperitoneal space H RASMUSSEN *Acta chirurg Scand*, 1935, 77 61 [133]

Gastro-Intestinal Tract

Periodicity in the clinical diagnosis of ulcer of the digestive tract. M J DEMOLE. *Rev méd de la Suisse Rom*, 1935, p 749

Tumors of the digestive tract C F GESCHICKTER. *Am. J. Cancer*, 1935, 25 130 [133]

An experimental study on tissue metabolism in the gastro-intestinal tract from the viewpoint of the development of carcinoma of the stomach. L KARCZAG and M HANÁK. *Orvosképzés*, 1935, 25 27

The surgical management of diseases of the gastro-intestinal tract. G CRILE and N F HICKEN *Surg Clin North Am.*, 1935, 15 1019

Some postoperative emergencies in gastro-intestinal surgery G CRILE *Surg Clin North Am.*, 1935, 15 1007

Roentgenological examination of the stomach and duodenum, the selection of patients B R. KIRKLIN *California & West. Med.*, 1935, 43 261

Fatal hemorrhage from the splenic artery into the stomach, also a contribution on the surgical significance of vascular variations in the blood supply of the stomach. T TOBLER. *Schweiz med. Wehnschr*, 1935, 2 826

Mucosal folds of the stomach and their relation to the vascular system. R. LOTZIN *Fortschr Roentgenstr*, 1935, 51 329

Prolapsing lesions of the gastric mucosa E P PENDERGRASS and J R. ANDREWS *Am. J Roentgenol.*, 1935, 34 337 [133]

Bilocular stomach due to hernia of the small bowel through the transverse mesocolon N R. BARRETT *Brit J Surg*, 1935, 23 469

Congenital hypertrophic pyloric stenosis H. J VANDEN BERG *J Michigan State M Soc*, 1935, 34 596

Trichobezoar A HURWITZ. *New England J Med*, 1935, 213 721

What rôle does chronic gastritis play in the etiology of peptic ulcer? M EINHORN. *Med Rec.*, New York, 1935, 142 353

The frequency and significance of the erythrocytic syndrome in gastroduodenal ulcer L UGELLI. *Polclin.*, Rome, 1935, 42 sez chir 544.

Peptic ulcer, an experimental study E E BLANK *Surg, Gynec. & Obst.*, 1935, 61 480

Gastroduodenal ulceration in the female. R L MASCIOTTA and R V CHILESE *Rev méd-quirúrg de patol femenina*, 1935, 3 280

Peptic ulcer and diseases of the biliary tract in the southern negro. F K. BOLAND. *Ann. Surg.* 1935, 97: 724.

A possible case of ulcerative gastric syphilis. E. A. LOMBARD and A. VITAL. *Seminars med.*, 1935, 42: 688.

Acute perforation of peptic ulcer. H. G. HOLLANDER. *Clifton Med. Bull.* Clifton Springs, New York, 1935, 19: 8.

Perforation of an acute peptic ulcer; report of a case. T. E. JONES and J. H. YANT. *Cleveland Clin. Quarterly* 1935, 2: 7.

The co-existence of gastroduodenal ulcer and biliary lithiasis. A. ROSENBLAT and C. A. TANTON. *Bol. Inst. de Clin. Quir. Univ. de Buenos Aires*, 1935, 11: 49.

Is the gastric ulcer benign or malignant? E. N. COLEMAN. *Surg. Clin. North Am.* 1935, 5: 913.

The possibility of malignancy as it affects the treatment of chronic gastric ulcer. W. J. M. SCOTT. *Ann. Surg.* 1935, 102: 586. [134]

The surgical treatment of peptic gastropyloric ulcers. J. PODOLSKA. *Russk. Chir. Gynæk. C. chir.* 1935, 4: 141.

Some physiological principles involved in the surgical treatment of gastric and duodenal ulcer. L. R. DRASSTOR. *Ann. Surg.* 1935, 97: 591. [134]

Cholecystogastrostomy in perforated gastroduodenal ulcer. V. DAVO. *Russk. Chir. Gynæk. C. chir.* 1935, 14: 49.

Ninety-eight controlled cases of gastric ulcer following operation. J. VIKTORIA. *Russk. Chir. Gynæk. C. chir.* 1935, 4: 71.

Contribution to the roentgen symptomatology of benign stomach tumors. G. F. FRIEDMAN. *Acta radiol.* 1935, 6: 616.

Connective tissue tumors of the stomach. A. E. BRANDEL. *Am. Fac. de med. de Montevideo*, 1935, 30: 4.

The Billroth I technique for gastric resection. H. ELZER. *Zentralbl. f. Chir.* 1935, p. 1460.

Failure after gastrojejunostomy. H. R. O. POATE. *Australas. & New Zealand J. Surg.* 1935, 5: 119.

A new method of gastro-enterostomy gastrectomy. R. DENTON. *Presse med.*, Par. 1935, 43: 1508.

A vicious circle following gastro-enterostomy. R. C. FERRARI. *Bol. Inst. de Clin. Quir. Univ. de Buenos Aires*, 1935, 1: 72.

Intestineception of the jejunum into the stomach through a gastro-enterostomy stoma. J. A. M. CASHOW and W. D. MACFARLANE. *Brit. J. Surg.* 1935, 3: 374.

Gastrostomy. PAULINO and PAULINO. *Rev. brasil. de cirurg.* 1935, 4: 341.

Changes produced by various operations on the stomach shown by the use of a modified acid test meal. F. C. RILEY, L. C. HILGREN, and C. M. W. HANLEY. *Arch. Surg.* 1935, 31: 61.

A rare case of foreign body in the bowel. K. KOSAYAMA. *Zentralbl. f. Chir.* 1935, p. 2008.

Circulatory disturbances caused by intestinal obstruction. W. D. GATCH and C. G. CULBERTSON. *Ann. Surg.* 1935, 102: 619. [140]

The technique for reversion of the bowel. R. B. MERRYMAN. *Am. J. Surg.* 1935, 30: 109.

Phlegmonous perityphlitis. R. KÄRNER. *Svenska Läkarförbundet*, 1935, p. 240.

The operative treatment of perforation of the bowel in typhoid fever. J. J. K. BERT. *Ann. Chir.* 1935, 6: 24.

The prevention of stasis digestion in high ileostomal fistulae. F. H. STRAUSS. *J. Am. M. Ass.* 1935, 109: 345.

A case intestinal anastomosis. II. An experimental study. E. J. POTTS. *Arch. Surg.* 1: 379.

Acute ileus. F. T. VAN BUREN JR. *Ann. Surg.* 1935, 101: 605.

An interesting and rare complication of an adhesion. G. A. ADLER. *Zentralbl. f. Chir.*, 1935, p. 2099.

The choice of laparotomy incision for acute ileus and acute diffuse peritonitis of unknown etiology. W. BERRY. *Wien. med. Wochenschr.* 1935, 2: 273.

Intestineception. P. L. HINLEY. *Brit. M. J.* 1935, 2: 77.

Recurrent acute intestineception; treatment with barium enemas and massage under fluoroscopic control. M. M. MILLER and C. L. BRATTE. *Ohio State M. J.* 1935, 31: 759.

Polyposis of the small bowel. BAKER. *Zentralbl. f. Chir.* 1935, p. 553.

Diseases of the duodenum. D. C. BALFOUR. *Australas. & New Zealand J. Surg.* 1935, 5: 102.

Congenital stricture of the duodenum. T. G. D. DONALD. *Lancet*, 1935, 129: 822.

Diverticulae in the first portion of the duodenum. M. ROYER, E. CHOCQOY SARAVIA, and R. LOTTREUX LAVAIE. *Seminars med.*, 1935, 42: 748.

Duodenocolic fistula simulating biliary stenosis. J. ALDENSTEIN and M. L. ROSENTHAL. *Lancet*, 1935, 129: 754.

The treatment of external duodenal fistula. J. I. FRANK. *Am. J. Surg.* 1935, 30: 176.

The incidence and significance of the roentgenological signs in duodenal ulcer. R. R. KROCK and H. A. BRUCE. *Ann. Int. Med.* 1935, 9: 496.

The treatment of perforated duodenal ulcer with simple closure and jejunostomy. A. S. FERGUSON. *Virginia M. Month.* 1935, 64: 366.

The surgical treatment of duodenal ulcer. H. B. DENTON. *Australas. & New Zealand J. Surg.* 1935, 5: 111.

Factors governing the results of surgical treatment of duodenal ulcer. D. C. BALFOUR. *Ann. Surg.* 1935, 102: 151. [140]

The passage of intestinal contents into the biliary passages following duodenal papulotomy. B. KÖHLER. *Acta chirurg. Scand.* 1935, 77: 153.

Jejunal diverticulae. SHERRARD. *New Zealand M. J.* 1935, 34: 370.

Rapportable. C. G. MITCHELL. *Ann. Surg.* 1935, 101: 674.

Chronic non specific granulomatous ileitis, report of four cases. T. E. JONES and R. V. BYRNE. *Surg. Clin. North Am.* 1935, 5: 1015.

Circumscribed phlegmonous and abscess abscesses with intact appendix. Operation, recovery. O. DOLZ. *Svenska Läkarförbundet*, 1935, p. 241.

Non specific granuloma of the ileocecal region. H. BRYNER. *Ann. Surg.* 1935, 102: 603.

Intestinal obstruction due to Meckel's diverticulum. O. GILBERT. *Bol. y trab. Soc. de cirurg. de Buenos Aires*, 1935, 9: 632.

Intestinal obstruction due to Meckel's diverticulum. R. K. DOVOVAR. *Bol. y trab. Soc. de cirurg. de Buenos Aires*, 1935, 9: 787.

Hemorrhage per rectum as an indication of disease in a Meckel's diverticulum. J. T. CHRISTIANMAN. *Brit. J. Surg.* 1935, 2: 207.

Surgical treatment of dochocholonic hemicolectomy. M. MARX. *Bordeaux chir.* 1935, p. 343.

Common disorders of the large bowel. P. W. MORGAN. *J. Kansas M. Soc.* 1935, 35: 400.

Alagholon. L. H. FORTNER and W. A. HANCOCK. *Minnesota Med.* 1935, 8: 646.

The treatment of Hirschsprung's disease. P. M. RANNEY. *Kentucky M. J.* 1935, 23: 474.

Prolapse of the colon in a patient with amputation of the rectum, operative treatment. P Huet *J de chir*, 1935, 46 363

The allergic factor in the etiology of non specific colitis D C HARE. *Lancet*, 1935, 229 767

Idiopathic ulcerative colitis L S McKittrick and R. H Miller. *Ann. Surg*, 1935, 102 656 [135]

Chronic ulcerative colitis AIKEN *New Zealand M J*, 1935, 34 207

Chronic ulcerative and non-ulcerative colitis and changes in motility of the bowel. E O Pascual. *Clin. y lab*, 1935, 20 145

A method of closure of temporary external fecal fistula H. W. Cave. *Surg., Gynec. & Obst.*, 1935, 61 499

Tumors of the colon PARTSCH *Zentralbl f Chir*, 1935, p 1277

Colectomy for adenomatosis and pseudopolyposis F W Rankin. *Ann Surg*, 1935, 102 707 [136]

The diagnosis and symptomatology of carcinoma of the colon E E Shaw *Iowa State M Soc.*, 1935, 25 528

The X-ray diagnosis of carcinoma of the colon C L. Gillies *Iowa State M Soc.*, 1935, 25 530

Multiple carcinosis of the colon PARTSCH *Muenchen med Wchnschr*, 1935, 1 1054

The surgical treatment of carcinoma of the colon N B Anderson. *Iowa State M Soc.*, 1935 25 531

Resection of the colonic flexures H Koster. *Am J Surg*, 1935, 30 115

Chronic appendix syndrome C F Tenney *New York State J M*, 1935, 35 977

Oxyunc appendicopathia L Lampe 1934 Kiel, Dissertation.

Appendicitis C A. Arias *Semana méd*, 1935, 42 634

The problem of appendicitis C F Freed *Pennsylvania M J*, 1935, 39 5

The diagnosis of acute appendicitis in children H F Helmholz *J-Lancet*, 1935, 55 681

Appendicitis in the aged H. Taylor. *Lancet*, 1935, 229 937

Intestinal obstruction in acute appendicitis C Stefanelli. *Rassegna internaz di clin e terap*, 1935, 16 876

Uncinarius and appendicitis M K King *New England J Med*, 1935, 213 851

Reducing the mortality rate in cases of perforated appendices J T Colwick *J Oklahoma State M Ass*, 1935, 28 374.

Regional differences in the appendicitis mortality rates in the United States C C Dauber and G D Lilly *Am J Surg*, 1935, 30 119

Electrosurgical appendectomy L R. Whitaker *New England J Med*, 1935, 213 856

Advances in the diagnosis and treatment of carcinoma of the rectum. H. Steindl. *Wien med Wchnschr*, 1935, 1 482, 518, 578 [136]

The diagnosis and treatment of carcinoma of the rectum A. Weinstein *West Virginia M J*, 1935, 31 461

Rectal and rectosigmoid cancer, the surgical treatment and prognosis F W Rankin *Northwest Med*, 1935, 34 387

The conservative surgery of carcinoma of the rectum *Proc. Roy Soc. Med*, Lond., 1935, 28 1559

Anal ducts, comparative and developmental histology C C Tucker and C A Hellwig *Arch. Surg*, 1935, 31 521 [137]

The injection of hemorrhoids. T B Quigley *J Am M Ass*, 1935, 105 1268

Anal fissure and its non-operative treatment. M Silbermann *Virginia M Month*, 1935, 62 376

Anal abscess and anal fistula H W Christianson *Minnesota Med*, 1935, 18 655

Partial suture following excision of an anal fistula, operative technique C. Cabané *Rev de chir*, Par, 1935, 54 633

The operative closure of an intestinal fistula and artificial anus E Harn. *Zentralbl f Chir*, 1935, p 1999

The Haecker type of artificial anus, operative technique. R. C. Ferrari *Bol inst de clin quir*, Univ de Buenos Aires, 1935, 11 67

Improvement of the preternatural anus and the technique of resection of the colon by the transposition method L Moszkowicz. *Med Klin*, 1935, 2 913

A clinical and roentgenological study of the Judd operation A. Salotti and R. Rendi *Arch ital di chir*, 1935 40 501

Liver, Gall Bladder, Pancreas, and Spleen

Biliary pigments in the blood A E Ralces *Rev méd-quirurg de patol femenina*, 1935, 3 193

The minor importance of stages of the pathogenesis of biliary lithiasis I Pavel. *Presse méd*, Par, 1935, 43 1565

A biliary calculus which was expelled through an intestinal fistula L A. Chiodin *Rev méd d Rosario*, 1935, 25 759

Acute hepatic insufficiency W A. Thomas *J Michigan State M Soc.*, 1935, 34 581

Jaundice L R. Pearson. *J Indiana State M Ass*, 1935, 28 489

Jaundice, its differential diagnosis T M Peery *J South Carolina M Ass.*, 1935, 31 187

The galactose tolerance test as an aid to diagnosis in jaundice. E H Bensley *Canadian M Ass J*, 1935, 33 360

A study of the coagulation defect in hemophilia and in jaundice. A J Quick, M Stanley-Brown, and F W Bancroft *Am. J M Sc.*, 1935, 190 501

Acholuric jaundice, the serial onset of acute blood crises in an entire family A. M. Scott *Lancet*, 1935, 229 872

The effect of diet on the weight of the liver and the glycogen concentration in partially hepatectomized rats C S Stone, Jr. *Arch. Surg*, 1935, 31 662

Toxic cirrhosis of the liver due to cinchophen poisoning F B Clarke and F B Settle. *Am. J Surg.*, 1935, 30 172

The medical treatment of amebic infections of the liver W H Holmes *Surg., Gynec. & Obst.*, 1935, 61 521

Liver abscess. I Amebic abscess. A Ochser and M DeBakey. *Am. J Surg*, 1935, 29 175 [138]

Amebic abscess of the liver, report of a fatal case in which etiology was first demonstrated in tissue sections of the diaphragm following autopsy P Williams *South M J*, 1935, 28 902

The diagnosis of liver abscess by the use of thorium dioxide R J Reeves *South. M & S* 1935, 97 552

Subphrenic abscess following trauma F R. Harper and C A. Thomas *J Am. M Ass*, 1935, 105 1267

Cavernous angioma of the liver with symptoms of pressure on the common duct. J M Jarufe and Jaime Company *Rev de cirug de Barcelona*, 1935, 5 126

The liver in relation to the surgical treatment of lesions of the extrahepatic bile ducts V C Hunt *California & West. Med.*, 1935, 43 278

Physiopathology of operations on the liver and hepatic vessels, the mechanism of accidents. R G Palmer. *Presse méd*, Par, 1935, 43 1418

A technique for hepaticoduodenostomy L E Guerry *Ann Surg*, 1935, 102 780

A case of hepaticoduodenostomy with biliary fistula R. Kaijser. *Svenska Läkartidningen*, 1935, p 1036

- Liver resection. *Tronca. Ann. Surg.* 1935, 103, 753.
- Metabolic disturbances in surgery of the liver and bile passages. O F MARTIN. *Bol y trab. Soc. de cirug. de Buenos Aires*, 1935, 10, 613.
- Metabolic disturbances in surgery of the liver and biliary passages. C VILLARRO SANCHEZ. *Bol y trab. Soc. de cirug. de Buenos Aires*, 1935, 10, 601.
- Stoiches of gall-bladder function. XI. The composition of the gall bladder bile in pregnancy. C RIZZO, I S RAYOR, P J MOSKOW, and M J POTTER. *J Am. M. Ass.* 1935, 105, 1543.
- A study of the relationship of pregnancy to disease of the gall bladder. R R HUGHES, B HARTON, and G W GIER. *Surg. Gynec. & Obst.*, 1935, 61, 471.
- Chronic cholecystitis. J F MARGUER. *Rev. méd. québécois de patol. féminine*, 1935, 3, 214.
- Observations on the symptomatology of cholelithiasis with special reference to vomiting. R ZOLLINGER and E YOUNG. *New England J Med.* 1935, 213, 714.
- Surgical problems in gall bladder disease. G CALLE. *Burg. Clin. North Am.*, 1935, 13, 905.
- Cholelithocholecystomy: a case report. I J BALLARIN. *Acta radiol.*, 1935, 10, 306.
- Symptoms that persist after cholecystectomy: their nature and probable significance. J F WEIR and A M SWELL. *J Am. M. Ass.* 1935, 105, 1093.
- Compensatory obstruction of the bile ducts. W E LADD. *Ann. Surg.* 1935, 101, 742.
- Functional changes in the extrahepatic biliary passages. R L MARCOTTA. *Rev. méd. québécois de patol. féminine*, 1935, 3, 300.
- Stenosis of the bile ducts by contiguous cicatricial tissue. E ELLIS JR. *Ann. Surg.* 1935, 102, 753.
- Benign fibrous stenosis of the common duct. R F CARTER. *Am. J. Surg.* 1935, 30, 170.
- Lipiodol in the duct of Wirsung in septic conditions of the splenic of Oddi. P L MINTZ. *Rev. méd. québécois de patol. féminine*, 1935, 3, 173.
- The immediate and late effects of the section of the splenic of Oddi. G BREWSTER. *Arch. ital. di chir.* 1935, 40, 509. [129]
- The treatment of carcinoma of the ampulla of Vater. A O WHIPPET, W B PARKMAN, and C R MILLER. *Ann. Surg.* 1935, 103, 703. [140]

- Acute abdominal conditions of pancreatic origin. *Sancr. Rev. de cirug. de Barcelona*, 1935, 5, 137.
- Polyp-like lesions in the colon in pancreatic conditions. B STROGEMAN. *Acta radiol.*, 1935, 10, 589.
- A case of hyperinsulinism relieved by partial pancreatectomy. J A BERRY. *Brit. J. Surg.* 1935, 3, 51. [140]
- Little known forms of chronic pancreatitis. *Ross. Clin. Chir.*, 1935, 1, 124. [141]
- Distant hematomas, the sequelae of hemorrhagic pancreatitis, their treatment. *Unica. Rev. de cirug. de Barcelona*, 1935, 5, 140.
- The survival of dogs with a complete pancreatic fistula. J BOTTIC. *Presse méd.*, 1935, 41, 1430.
- The causes of death from complete pancreatic fistula in the dog. J BOTTIC. *Rev. belge d. sc. méd.* 1935, 7, 304. [141]
- The pathogenesis and symptoms of cysts of the pancreas. R. PATAZZI. *Rassegna italiana di chir. e terap.* 1935, 6, 836.
- Spontaneous pseudocysts of the pancreas. R L MARCOTTA and P F FERRANDO. *Rev. méd. québécois de patol. féminine*, 1935, 3, 266.
- Pancreatic cysts in children. RANER. *Zentralbl. f. Chir.* 1935, p. 1551.
- Gaucher's disease of late onset with kidney involvement and a large spleen. J S HOSLEY JR., J F RAKER, JR., and F L APPERLY. *Am. J. M. Sc.*, 1935, 90, 51.
- A peculiar operative finding—a strand of spleen tissue extending to the epididymus. W FISCHER and H GEMZ. *Ber. klin. Chir.* 1935, 6, 595.
- Results of splenectomy in childhood. G C FROSTMAN and T B COOKER. *Ann. Surg.* 1935, 103, 643.

Miscellaneous

- Gunsbot wounds of the abdomen in peace-time. M. KRAMER. *Ber. klin. Chir.* 1935, 107, 103.
- Acute abdominal pain in sickle-cell anemia. E H CAMPBELL, JR. *Arch. Surg.* 1935, 3, 607.
- Abdominal purpura of appendicular type in hemophilic. C MARI. *Bol. inst. de clin. chir. Univ. de Buenos Aires*, 1935, 79.
- The attitude of surgery to hematemesis. G GOSWORTHY. *Lancet*, 1935, 290, 81.

GYNECOLOGY

Uterus

- The pharmacological action of digitalis on the isolated uterus of the pregnant guinea pig. E BRUNTT. *Gynecologia*, 1935, 873.
- Recent advances in hysterography. T O MEDINA and J D MILLER. *Am. J. Obst. & Gynec.* 1935, 30, 390.
- Complete inversion of the uterus. J COOK. *Lancet*, 1935, 90, 824.
- Two cases of acute inversion of the uterus. M L THURMON. *J. Obst. & Gynec. Brit. Emp.* 1935, 42, 867.
- Total spontaneous inversion of the uterus, reduction at the end of ten hours recovery without accident. VONCK, BROCKMAN, and COVATMAN. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 473.
- When is surgery indicated in retrodisplacement of the uterus? G H GARDNER. *Am. J. Obst. & Gynec.* 1935, 30, 306.
- The Fothergill operation and the Manchester operation in the treatment of genital prolapse. E NICHOLSON. *Arch. ginecologica de med. cirug. y especial* 1935, 7, 92.

- The place of coelpectomy in the treatment of uterine and vaginal prolapse. L E PRAYOUR. *Am. J. Obst. & Gynec.*, 1935, 30, 344. [141]
- Experimental reproduction of uterine atrophy by operations on the abdominal sympathetic. A LAFORT and H C FRANK. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 437.
- Lesions of the cervix uteri—diagnosis and treatment. C H DAVIES. *New England J. Med.*, 1935, 213, 690.
- Cervical tears. I KENNEDY. *Obstetrics*, 1935, 3, 361.
- Pelvic inflammatory diseases. J H MOORE. *J. Lancet*, 1935, 291, 671.
- Indication of the uterine cervix. H W KOSTMAYER. *South. M. J.* 1935, 48, 931.
- Voluminous fibrous polyp of the uterus removed through the abdomen. BOYER. *Bull. et ann. Soc. d. chirurgie de Par.* 1935, 27, 447.
- Calculated uterine fibrosis. N C LAFORT and H FRANK. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 519.
- The conservative operation for fibromyoma of the uterus. J TRAP. *Bratslav lek. Listy* 1935, 5, 364.

Chemo-surgery of the pelvic sympathetic nerves in essential priapism of the vulva. D. KALL. *Chir. centr.* 1935, 371, 549.

Chronic atrophic dermatitis of the vulva. F. L. ADAMS and M. E. DAVIS. *Burg. Gynaec. & Obst.* 1935, 611, 433.

Therapeutic criteria of leucoplakia of the vulva. C. STAJANO. *Arch. urogenital. de med. chir. y especial.* 1935, 7, 330.

Lipoma of the labia majora. E. DELAROU. *Bull. Soc. d'Obst. et de gynéc. de Par.* 1935, 24, 453.

Miscellaneous

Some new varietals in gynecology. E. EMMER-MOLLER. *Svenska Läkartidningen*, 1935, p. 84.

Some recent advances in gynecology. E. MOLLER. *Practitioner* 1935, 135, 455.

The contributions of Great Britain to gynecology and obstetrics. B. M. ASANACH. *Am. J. Obst. & Gynec.* 1935, 301, 499.

Observations on peculiarities in human menstruation. E. SCHWARTZ. *Osteopathica*, 1935, 45, 406.

Stimulation of menstruation with artificial corpus luteum hormone. C. KAUFMAN. *Ztschr. f. Geburtsh. u. Gynaec.* 1935, 111, 122.

The diagnosis and treatment of functional metrorrhagia. V. JANKOVSKÝ. *Russk. Chir. Gynaec. C. chir.* 1935, 14, 90.

Menstrual hemorrhage, treatment. C. KAUFMAN. *Zentralbl. f. Gynaec.* 1935, p. 190.

Sudden death during vicarious menstruation. W. P. KUCHENBERG. *Deutsche Ztschr. f. gynäk. Med.* 1935, 25, 196.

The management of functional menstrual disorders. E. P. MCCULLAGH. *Cleveland Clin. Quarterly* 1935, 2, 53.

The hormonal treatment of menstrual disturbances and its theoretical basis. A. WEITMAN. *Acta obst. et gynec. Scand.* 1935, 3, 33.

The treatment of disturbances of the surgical menopause by blood transfusions. S. TUCKER. *Gynecology*, 1935, 1, 631. [144]

The treatment of dysmenorrhea by premenstrual sympathectomy. F. E. KIRBY. *Am. J. Obst. & Gynec.* 1935, 30, 334.

Male sex hormones in the female body. H. SIEBER. *Ztschr. f. d. ges. Naturwiss.* 1935, 1, 161.

The relation of Epids to estrin and progesterin to the corpus luteum of the sow. E. M. BORD and C. A. ELDER. *Endocrinology* 1935, 19, 399.

The effect of the sex hormones on the blood pressure. S. LITMAN. *Polish Gaz. lek.* 1935, pp. 175, 3.

An experimental study on the effect of iodocetic acid and letals on the breasts of growing guinea pigs—the daily administration of small doses for many months and large doses during the course of two and one half months. E. DAMEL-IVKOVSK. *Hosp. Tid.* 1935, p. 293.

The effect of iodocetic acid on the endocrine glands. B. KOSCHENKOV. *Polish Gaz. lek.* 1935, p. 280.

The reaction of the uterus to extracts of the posterior lobe of the hypophysis in cases of hyperplasia glandularis cyclica. E. JUNGHEIM. *Zentralbl. f. Gynaec.* 1935, p. 1960.

The treatment with female sex hormones. H. GROSSER. *Schwed. med. Wchnsch.* 1935, 1, 160.

The orthopedic use of the female sex hormones. C. KAUFMAN. *Deutsche med. Wchnsch.* 1935, 30, 86.

A case of severe juvenile metropathy cured by hormone treatment. Z. SZIMONY. *Magy. Nőgyógy.* 1935, 4, 66.

Aerophagia and gynecological conditions. A. VALERIO. *Arch. bras. de med.* 1935, 3, 50.

Narrow pelvis. H. DANK. 1934: Kiel, Dissertation.

Gynecological hemorrhage. S. VIZAKOV. *Russk. Chir. & Gynaec.* 1935, 14, 85.

Gynecological hemorrhage. M. BOENAVANT. *Russk. Chir. & Gynaec. C. gynéc.* 1935, 14, 83.

Intrapelvic hemorrhage in gynecology. I. KAPLAN. *Obstet. Med.* 1935, p. 793.

The treatment of long-continued hemorrhages with desmomen. D. PRONOV. *Russk. Chir. & Gynaec. C. gynéc.* 1935, 14, 94.

The treatment of hemorrhage in endometriosis with follicular hormone, and the use of this hormone for differential diagnostic purposes. K. TITTEL. *Zentralbl. f. Gynaec.* 1935, p. 1763.

The endometrial syndrome in the female exclusive of pregnancy. A. GUILLEMY. *Arch. franco-belges de chir.* 1934, 24, 276.

The value of studying the patient during the menstrual period for the recognition of gonorrhea. F. SCHWARTZ. *La Revue. Derm. Wchnsch.* 1935, 3, 81.

Advances in the medical treatment of gonorrhea in the female. W. FUCHTENGARTEN. *Deutsche med. Wchnsch.* 1935, 3, 106.

The treatment of cervical gonorrhea with Savade. A. BARNOWITZ. *Deutsche med. Wchnsch.* 1935, 30, 117.

Hydatid disease of the female genitalia. V. KOT. *Rev. med.-chir. de pest. française*, 1935, 3, 23.

Electromyogram of the female reproductive tract. E. C. HANCOCK, R. D. BAKER, and D. S. MARTIN. *Am. J. Obst. & Gynec.* 1935, 30, 345. [146]

Relaxation of the anal sphincter in absence of the cure of Douglas fistula. Deutsche Ztschr. f. Chir. 1935, 25, 195.

Cervical urethral fistulas from leishmaniasis. O. CASAROT. *J. d'anal. med. et chir.* 1935, 40, 145. [148]

Endometriosis. C. M. LEE and H. LINDER. *Clinical Med. Bull. Chilton Springs, New York*, 1935, 9, 22.

Symptoms of pelvic endometriosis. R. D. MARTIN and W. L. MURPHY. *Am. J. Surg.* 1935, 30, 341.

So-called endometriosis of the uterus and adnexa. J. ZERNIKOV. *Bratslav. lek. Listy* 1935, 15, 149.

The relationship between the histology, prognosis, and treatment of genital carcinoma. P. FELDNER. *Ztschr. f. Geburtsh. u. Gynaec.* 1935, 11.

The gonadotropic hormone (prokin) in relation to carcinoma of the cervix. J. A. HALLER. *New England J. Med.* 1935, 1, 504.

Cancer of the female urethra. E. S. AUST. *Am. J. Obst. & Gynec.* 1935, 30, 35. [149]

Natural conception control. L. J. LANE and E. REEVE. *J. Am. M. Ass.* 1935, 105, 341.

The question of physiological sterility. K. HINK. *Ikawa senri. Fortbild.* 1935, 26.

The chemical investigation of functional sterility in the female. P. B. BLAVON, A. PRUITT, and L. GOSWAMI. *J. Am. M. Ass.* 1935, 105, 31. [146]

Sterility causes and treatment. P. TITTEL. *J. Am. M. Ass.* 1935, 105, 37.

The rationale of the diagnosis and treatment of sterility from the gynecological point of view. G. LYONS. *J. Med. Cincinnati*, 1935, 16, 408.

The surgical treatment of sterility in the female. J. CORREA. *Rev. mexicana de chir. gynec. y obstet.* 1935, 3, 140.

Short-wave therapy and its value in gynecology. M. SPOAL. *Polish Gaz. lek.* 1935, p. 148.

Electrotopography in gynecology. B. F. BOLAND. *Med. Rec. New York*, 1935, 143, 175.

Resection of the premenstrual nerve in gynecology. A. PRONOV. *New England J. Med.* 1935, 3, 179.

The necessity of gynecological exploration and the opportunity for gynecological laparotomy in chronic appendicitis. A. DE GRISOGONO *Clin obstet.*, 1935, 37 546
 Sacral (caudal block) analgesia in gynecology. H. V. SNIES. *South. M. J.*, 1935, 28 608

Evipan anesthesia in gynecological and obstetrical procedures. J. CROSILLA. *Magv. Nőgyógy.*, 1935, 4 107
 Changes in the technique of the Castano operation. A. J. RISOLIA. *Bol. inst. de clín. quir.*, Univ. de Buenos Aires, 1935, 11 87

OBSTETRICS

Pregnancy and Its Complications

Practical hints in prenatal examinations. R. B. SCRUTZ. *J. Kansas M. Soc.*, 1935, 36 410
 The clinical use of the Aschheim Zondek test. Afterstudy in the University Gynecological Clinic. W. HEERHARTZ. 1934. Halle-Wittenberg, Dissertation
 Control and modification of the Schneider test for the biological test of pregnancy. DE MENDIZÁBAL and DR. AMILIBIA. *Arch. de med. ciruj. y especial.*, 1935, 16 504
 Variations in the Friedmann test with urine previously treated with infra red or ultraviolet rays. T. M. C. FARATTO and L. CAVATINO. *Ginecologia*, 1935, 1 981
 Twin pregnancy in a bicornuate uterus. S. ROBERTO. *Clin. obstet.*, 1935, 37 532
 Two cases of triple pregnancy. P. BRAULT, C. ROCHAUD, and A. TIZON. *Bull. Soc. d'obst. et de gynéc. de Par.*, 1935, 24 431
 The diagnosis of ectopic pregnancy. A. C. TIEMEYER. *Med. Rec.*, New York, 1935, 142 373
 Decidual cast in suspected ectopic gestation. S. G. LUKER. *Proc. Roy. Soc. Med.*, Lond., 1935, 28 1651
 Simultaneous intra uterine and extra uterine pregnancy. F. C. VAN TONGEREN. *Nederl. Tijdschr. v. Verlosk.*, 1935, 38 132
 Simultaneous intra uterine and extra uterine pregnancy. A. ALTHADE and A. L. IBÁÑEZ. *Rev. méd. quirurg. de patol. femmina*, 1935, 3 230
 Abdominal pregnancies occurring in Detroit during 1933. C. N. SIVANSON. *J. Michigan State M. Soc.*, 1935, 34 585
 Interstitial pregnancy implanted in a stump of a tube previously removed for tubal pregnancy. P. MEYER. *Bull. Soc. d'obst. et de gynéc. de Par.*, 1935, 24 492
 The results of treatment of tubal pregnancy in the University Gynecological Clinic at Jena. C. BRUNO. 1935. Jena, Dissertation
 Ovarian pregnancy. N. P. COSTA and A. FALSIA. *Semana méd.*, 1935, 42 623
 The amino-acid and iron content in the placenta. V. LUTBERGER. *Bratislav. lek. Listy*, 1935, 15 325
 The Vitamin C content of the placenta. W. NEUWEILER. *Schweiz. med. Wchnschr.*, 1935, 1 539
 The marginal sinus and marginal zone of the placenta. R. SPANNER. *Zentralbl. f. Gynaek.*, 1935, p. 1442
 Abscess of the placenta causing abruptio placentae. S. S. ROSENFELD. *J. Am. M. Ass.*, 1935, 105 1113
 Fetal cephalometry. L. A. ROWDEN. *Brit. J. Radiol.*, 1935, 8 610
 Fetal cephalometry. C. L. McDONOUGH. *Brit. J. Radiol.*, 1935, 8 613
 The position of the fetal head in the superior strait. J. C. LASCANO. *Arch. uruguayos de med. ciruj. y especial.*, 1935, 7 166
 A new sign in the diagnosis of transverse position with prolapse of the arm. L. BARCALA MORO. *Medicina*, Madrid, 1935, 6 214
 The radiological estimation of fetal maturity. R. E. ROBERTS. *Brit. J. Radiol.*, 1935, 8 601
 The test for adrenalin in the amniotic fluid and in extracts of the amniotic membranes during various stages of

pregnancy. O. MACCHIARULO. *Arch. f. Gynaek.*, 1935, 150 355

The significance of tissue nourishment in the intra-uterine carbohydrate metabolism of the fetus. B. SZENDI and G. PAPP. *Orvosi hetil.*, 1935, p. 890

The influence of the medicaments injected in the female rabbit upon the development of the fetuses, especially upon the growth of their epiphyseal centers of long bones of the limbs and the bones. E. TERADA. *Jap. J. Obst. & Gynec.*, 1935, 18 396

Studies on the iron metabolism in pregnancy. III. Hemoglobin and iron determinations in the blood during pregnancy. K. U. TOVERUD. *Norsk Mag. f. Lægevidensk.*, 1935, 96 381

The amino-acid metabolism during pregnancy. J. BOTELLA-LLUSI. *Ztschr. f. Geburtsh. u. Gynaek.*, 1935, 111 68

Thyroid function during pregnancy and the determination of thyroid hormones in the blood during pregnancy. K. J. ANSELMINO and F. HOFFMAN. *Arch. f. Gynaek.*, 1935, 150 84

The lactic acid content of the blood in pregnancy and the puerperium. J. TRUKA. *Ztschr. f. Geburtsh. u. Gynaek.*, 1935, 110 137

Studies on the bilirubin content of the blood in pregnancy and the puerperium. R. WOLF. 1935. Jena. Dissertation

The gonadotropic and follicular hormones during pregnancy and during the onset of labor. S. ARAYA. *Orvosi hetil.*, 1935, p. 585

The value of urea determinations in obstetrics and gynecology. F. W. WINTER. *Arch. f. Gynaek.*, 1935, 159 332

Studies on tobacco poisoning, experimental nicotine poisoning in pregnancy and its effect on the products of conception. G. MORRA. *Ginecologia*, 1935, 1 996

Complications of pregnancy. J. A. URNER. *J. Lancet*, 1935, 55 678

Disturbances experienced by pregnant women when in the dorsal position. G. AHLTORP. *Acta obst. et gynec. Scand.*, 1935, 15 295

Torsion of the pregnant uterus. H. F. DAY. *New England J. Med.*, 1935, 213 605 [147]

Five cases of rupture of the uterus. A. STAMM. 1934. Muenster. W. Dissertation

Spontaneous rupture of the uterus during pregnancy. H. H. FLETCHER. *J. Obst. & Gynec. Brit. Emp.*, 1935, 42 848

The insidious type of spontaneous rupture of the uterus. N. P. COSTA and M. V. FALSIA. *Bol. Soc. de obst. y gynec. de Buenos Aires*, 1935, 14 405

Experiences in the treatment of uterine rupture. J. BAZAN and F. A. URANGA IMAZ. *Bol. Soc. de obst. y gynec. de Buenos Aires*, 1935, 14 390

Anemia in pregnancy. E. FILO. *Bratislav. lek. Listy*, 1935, 15 200

Essential hypochromemia, with reference to essential anemia of pregnancy. W. SCHULTZ. *Verhandl. d. deutsch. Ges. f. inn. Med.*, 1935, p. 327

Glycosuria in pregnancy and its clinical significance. H. J. JOHN. *Ohio State M. J.*, 1935, 31 751

Hemorrhage as a sign of toxemia of pregnancy. H GARCIA SAN MARTIN Arch uruguayas de med ciruj y especial 1935, 7, 204.

Pregnancy toxemia. BOKELMANN Zentrbl f gerichtl Fortbild, 1935, 3, 127, 173.

Toxemia of pregnancy. J R. GOODALL Am J Obst & Gynec 1935, 30, 377.

Protein stabilization in pre eclampsia. B HARTER, W S McELROY and R. R. HODGES Am J Obst & Gynec 1935, 30, 324.

The treatment of eclampsia. I SCHREIER Orvostudok, 1935, 25, 505.

The conservative treatment of eclampsia. E VOOR Fortschd d Therap 1935, 1, 387.

The value of determinations of pressure in the skin vessels in the treatment of eclampsia. D von RAUM Zentrbl f Gynaek 1935, p. 1634.

Colossal blood loss. W JELIXER Zentrbl f Gynaek 1935, p. 634.

Studies in the development of pregnancy edema. A RÓVA and F. HÖRNER Orvostudok 1935, p. 843.

A diagnostically difficult case of dermatosis of pregnancy. A TEFIS Bratislav lek Listy 1935, 5, 583.

Pregnancy and labor in hypophyseal adipsity. K. HETTERWITZ Zentrbl f Gynaek 1935, p. 8.

A fatal case of pregnancy complicated with toxemia. P C DUTTA, J Obst. & Gynec. Brit Emp 1935, 42, 369.

Functional disturbances of the thyroid gland and pregnancy. P REICHMANN Orvostudok 1935, p. 666.

Some observations on malarial occurring in association with pregnancy, with special reference to the transplacental passage of parasites from the maternal to the fetal circulation. G. A. W. WICKHAMARSHITA J Obst & Gynec Brit Emp 1935, 42, 816. [167]

Nephropathy of pregnancy of the hypod nephrotic type. PÉREAUD and COMBAYRE Bull Soc d'obst et de gynéc de Par 1935, 24, 473.

Renal stones and pregnancy. F GERLACH 1935. Monch, Dissertation.

Mucosal polyp of the cervix and pregnancy. B. EISENBERGER Pöbels Ges lek 1935, p. 83.

A fibroma undergoing necrosis complicating pregnancy at term. R. KELLER Bull Soc d'obst et de gynéc de Par 1935, 24, 480.

Myositis and pregnancy. T. NIKICHAY Medy Nigryz 1935, 4, 15.

Evacuation of uterine myomas during pregnancy. F. RUDENKOV Monatsschr f Geburt Gynaek 1935, 99, 196.

Rupture of the tube with the picture of an intra-uterine abortion. W. BRINK Zentrbl f Gynaek 1935, p. 80.

The problem of criminal abortions in the City of New York. I. W. KARR Med Rec New York, 1935, 147, 34.

Post abortion accidents and courtage. F. PAVON J de med de Bordeaux, 1935, 1, 653.

Labor and Its Complications

The trend of modern obstetrics. C. T. COLLINS Trans State J M 1935, 1, 93.

The induction of labor. L. G. HODGES Brit M J 1935, 721.

The conduct of labor by the physician. A. CHIRILL Verhänd d Kong jugoslav chir Ges 1935, 4, 86.

The mechanism of labor and its control. I. A new obstetrical approach. II. The conduct and control of labor. J. A. EDWITT Arch uruguayas de med ciruj y especial 1935, 7, 1.

The value of counting labor pains. H. PRINZEL Monatsschr f Geburt u Gynaek 1935, 99, 160.

On the thyrophysiology question. Observations based on 1,850 cases. K. HETTERWITZ J Obst. & Gynec. Brit. Emp. 1935, 42, 835.

Prolonged labor. J. LOVATOVICH Arch uruguayas de med ciruj y especial 1935, 7, 107.

Twin births in the Institute for Maternal Training and Gynecological Clinic at Moscow. W. STOLL 1934. Gessen, Dissertation.

The occurrence of certain spontaneous ruptures of the uterus during delivery. S. BARJAKAROV Med Pregl 1935, 10, 30.

Dystocia due to a transverse septum in the vagina. W. CARMONIER Bull Soc d'obst et de gynéc de Par 1935, 24, 404.

Spontaneous abortion and labor. A case report. H. KIRCHHOFF Zentrbl f Gynaek 1935, p. 183.

Labor obstructed by spontaneous abortion. A. J. ILIUS Brit J Radiol 1935, 8, 659.

The value of the latter type of external pedicle vessels in the management of persistent posterior occiput cases. M. AL. JONES J Michigan State M Soc 1935, 34, 614.

Obstetrical complications; prolapse of the cord and extremities. A statistical study of the material from the Kiel University Clinic from October 1, 1931 to October 1, 1937. R. SCHÖNE 1934. Kiel, Dissertation.

Spontaneous delivery in a woman with Shwartz weighing 7 kgm. HOFMEIER and WOLFF Bull Soc d'obst et de gynéc de Par 1935, 24, 453.

The symphyseotomy of ZARETS in relative heavy dystocia. N. PALACIOS-COSTA and M. V. FALSA Arch uruguayas de med ciruj y especial 1935, 7, 129.

The use and abuse of cesarean section. M. KOSAROV Med Rec New York, 1935, 142, 360.

Cesarean section. D. A. BICKEL J Indiana State M Ass 1935, 26, 483.

Low cesarean section for shoulder presentation. But, PALLIER, and GROSZER Bull Soc d'obst et de gynéc de Par 1935, 24, 490.

Extraperitoneal cesarean section. J. P. SCOTT North-west Med 1935, 34, 30.

Extraperitoneal cervical cesarean section. J. LÉVY Semana med 1935, 43, 773.

A fibromatous gravid uterus weighing 5,400 gm. or traction of fetus weighing 3,700 gm. by cesarean section, hysterectomy, living mother and child. P. BRATUL and A. MOGILAN Bull Soc d'obst et de gynéc de Par 1935, 24, 440.

Results and indications of the cesarean section. R. KELLER and E. BOELLKE Gynaecologie, 1935, 34, 2, [169].

A new instrument for extraction of the fetus, and the remaining head, following perforation and eversion of the skull. T. KONZAK Zentrbl f Gynaek 1935, 9, 937.

Bleeding on the third stage of labor and its treatment. S. VIKAROVIC Lijec vjesnik, 1935, 37, 251.

Obstetrical analgesia with postobiternal modern, the leucocyte response during the puerperium. H. M. TERT and D. E. REID Surg Gynec & Obst 1935, 6, 543.

An analysis of end-results of labor in puerperia after spontaneous versus prophylactic methods of delivery. A. H. ALLENBERG and F. WATSON Am J Obst & Gynec 1935, 20, 554.

Puerperium and Its Complications

The impedence phenomenon in the puerperium. G. GAZPARICH Gynaecologia, 1935, 34, 2.

Puerperal shock three hours after forceps delivery. TRILLAT and RIVIER Bull Soc d'obst et de gynéc de Par 1935, 24, 474.

Studies on lactosuria during the puerperium F GAS-PARRI *Ginecologia*, 1935, 1 971

Fever in pregnancy and the puerperium A. PERALTA-RAMOS, J. MORAGUES-BERNAT, and F. URANGA-IMAZ *Arch. uruguayos de med., ciruj y especial*, 1935, 7 97

Gauze strip drainage as the treatment of febrile uncomplicated abortion F. DOERNER 1934 *Koenigsberg* 1 Pr., Dissertation

Two cases of aseptic thrombophlebitis occurring during the puerperium J. ROUFFART-MARIN *Bruxelles-méd.*, 1935, 15 1298

Colon bacillus infection in the puerperium N. PALACIOS-COSTA and A. PEYLOUBET *Arch. uruguayos de med. ciruj y especial*, 1935, 7 145

A case of post-partum infection treated by chloral hydrate of sulphamid chrysoidin LACOMME *Bull. Soc. d'obst. et de gynéc. de Par.*, 1935, 24 443

Puerperal peritonitis H. GARCÍA-SAN MARTÍN and L. SACCO-FERRARO *Arch. uruguayos de med., ciruj y especial*, 1935, 7 221

One hundred and eighty seven cases of puerperal sepsis and pyemia in a twelve-year observation material from the Woman's Clinic of the University at Frankfurt a. M. F. STAHLER. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1935, 99 193 [148]

The remote results of puerperal sepsis SIR E. MACLEAN *Brit. M. J.*, 1935, 2 656

Postpartum care with special reference to pessaries and retroversion C. J. FAIRO *J. Med.*, Cincinnati, 1935, 16 399

The merits and demerits of oxytocic drugs in the postpartum period. C. MOIR. *Proc. Roy. Soc. Med.*, Lond., 1935, 28 1654 [149]

Newborn

The immunity of the newborn. J. RHENTER *Bull. Soc. d'obst. et de gynéc. de Par.*, 1935, 24 471

Pathological conditions in the newborn T. MYERS *Minnesota Med.*, 1935, 18 658

Asphyxia neonatorum, its cause and mechanism, with especial reference to the fetal heart sounds and the labor traumatism of the newborn H. YAGI *Jap. J. Obst. & Gynec.*, 1935, 18 375

Cyanosis of the newborn E. A. MORGAN and A. BROWN *J. Am. M. Ass.*, 1935, 105 1085

Symmetrical gangrene of the extremities in the newborn C. M. DE DURAND and I. D. BOBILLO *Semana méd.*, 1935, 42 725

The obstetrical mortality of the newborn P. GAIFANI *Clin. obstet.*, 1935, 37 558

Miscellaneous

Some newer aspects of reproductive physiology E. NOVAK. *Am. J. Obst. & Gynec.*, 1935, 30 495 [149]

Diseases of the liver, kidneys, and urinary passages in relation to obstetrics and gynecology H. RUPP *Monatsschr. f. Geburtsh. u. Gynaek.*, 1935, 99 305

The Aschheim-Zondek pregnancy test in vesicular mole and chorionepithelioma C. J. H. DE GEUS *Nederl. Tijdschr. v. Verlosk.*, 1935, 38 97

The behavior of the anterior lobe of the pituitary in cases of chorionepithelioma T. WICZYŃSKI *Ginek. polska*, 1935, 14 1 [150]

A study of a new and potent ergot derivative, ergotacin F. L. ADAIR, M. E. DAVIS, M. S. KHARASCH, and R. R. LEGAULT. *Am. J. Obst. & Gynec.*, 1935, 30 466 [150]

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

The silhouette method for comparing the volumes of the two parts of the adrenal glands in small animals J. C. DONALDSON *Endocrinology*, 1935, 19 523

Addison's disease in a young girl A. THOMPSON *Irish J. M. Sc.*, 1935, 118 606

Congenital solitary kidney R. A. HENNESSEY and A. D. MASON *South M. J.*, 1935, 28 881

Pyelography J. SALLERAS *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 19 652

Descending urography and surgery of the kidney and ureter J. SALLERAS *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 19 797

A pyelographic study of renal ptosis E. BAZTERRICA *Rev. méd.-quirúrg. de patol. femenina*, 1935, 3 239

Pyelography in renal ptosis A. J. BENGOLEA *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 19 785

Maclean's renal function test in surgical diseases of the kidney L. W. GÖTHGEN *Acta chirurg. Scand.*, 1935, 77 90

Congenital hydronephrosis A. LAZZERONI *Rassegna internaz. di clin. e terap.*, 1935, 16 935

Traumatic rupture of the congenital solitary kidney J. R. H. TURTON and J. C. F. LLOYD WILLIAMSON *Brit. J. Surg.*, 1935, 23 327

Hypoplastic kidney, report of a case having a stone in the opposite kidney P. G. GAMBLE *South M. J.*, 1935, 28 887

Renal tuberculosis A. J. GREENBERGER and M. E. GREENBERGER. *Quarterly Bull. Sea View Hosp.*, New York, 1935, 1 43

Experiences and results in the treatment of tuberculosis of the kidneys during the years from 1923 to 1933 at the Surgical Clinic, Leipzig J. PENZOLD 1935 *Leipzig, Dissertation* [151]

Renal calculi, its etiology and prophylaxis M. B. WESSON *J. Urol.*, 1935, 34 289

Stratified and faceted kidney stones S. R. KJELLBERG *Acta radiol.*, 1935, 16 571

Calculus in a horseshoe kidney BONNET *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9 434

Bilateral polycystic kidney F. GAGO VICENTE. *Medicina, Madrid*, 1935, 6 248

Neoplasms of the kidney and ureter G. G. SMITH *Am. J. Surg.*, 1935, 30 130

Replacement lipomatosis of the kidney E. W. EXLEY and T. J. DEVEREAUX *J. Urol.*, 1935, 34 296

Primary adenocarcinoma of the kidney L. ATHERTON, Kentucky M. J., 1935, 33 440

Squamous-cell carcinoma of the renal pelvis M. SILVERSTONE *Brit. J. Surg.*, 1935, 23 332

Clinical results in carcinoma of the kidney, bladder, and prostate. G. VON ILLYÉS *Ztschr. f. urol. Chir.*, 1935, 41 123 [152]

Experimental surgery of the kidney O. S. LOWSLEY *J. Kansas M. Soc.*, 1935, 36 397

Nephropexy, indications for, operative procedure, and results C. W. LOSH. *J. Iowa State M. Soc.*, 1935, 25 540

Phenolization of the renal pedicle. GAILLARD *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9 445

Bilateral double ureter LYALL. *Lancet*, 1935, 229 940

Technique for the removal of stones from the ureter W. E. LOWER. *Surg. Clin. North Am.*, 1935, 15 831

Secondary tumors of the ureters; various types, with report of two cases. S. R. WOODRUFF. *J Am M Ass* 1935, 105: 915.

Ureteral transplantation for ectropion and carcinoma of the bladder. C. C. EDWARDS. *Cleveland Clin Quarterly* 1935, 2: 33.

Bladder, Urethra, and Penis

Simplified interpretation of cystometrograms. The three factor principle. M. MOWBRAT. *J Urol* 1935, 34: 340.

Foreign body in the bladder associated with pregnancy. R. FARACONER. *Lancet*, 1935, esp. 835.

A novel way of ridding the bladder of parasites. W. G. SCHULTZ. *J Urol* 1935, 34: 353.

Loss of urinary control associated with relaxation of the vesical neck; a modified technique for its treatment. M. DOUGLAS. *Surg Gynecol & Obst* 1935, 61: 534.

Case of vesical calculus weighing almost two pounds. J. ITALANO. *J Urol* 1935, 34: 360.

Multiple bladder stones with unusual symptoms. A case report. T. B. WASHINGTON. *Virginia M Month*, 1935, 63: 374.

Cystitis follicularis. F. HENKMAN and J. CONDORELLA. *J Urol* 1935, 34: 368.

Complete urinary retention due to a vesical polyp in an infant of four years. V. CANTON. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 478.

Cystostomy according to Belknap. R. CONDORELLA. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 478.

Prostatic resection for certain vesical conditions. O. H. FULCRON. *West Virginia M J* 1935, 31: 466.

Two cases of obstruction in the suprapubic cystostomy scar. V. CANTON. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 476.

Congenital valves of the posterior urethra. V. S. COOPELAND and J. G. MURPHY. *J Urol* 1935, 34: 368. (132)

Congenital valvular obstruction of the posterior urethra. H. E. LAWSON and R. RALL. *J Urol* 1935, 34: 34. (133)

Calculus of the urethra. BRANDAO FILHO. *Bol. et anu. Soc. d. chirurgias de Par* 1935, 97: 457.

The treatment of carcinoma of the penis. K. OVERBERG. *Röntgenpraxis* 1935, 7: 463. (133)

Genital Organs

Prostatic hypertrophy treated by acid nitrate of silver solution. M. E. REYNOLDS. *Northwest Med* 1935, 34: 374.

Types of prostatic hypertrophy with relation to surgical treatment. W. J. DICKIN. *Surg Clin North Am* 1935, 1: 1003.

Endoscopic resection for enlarged prostate. F. McCL. LOUGHRAN. *Brit J Urol* 1935, 7: 444. (134)

Lobectomy of the prostate gland. F. S. PATTER and L. J. RIEBA. *Brit J Urol* 1935, 7: 213. (134)

Alveolar and chifone carcinoma of the prostate gland simulating chondrosarcoma. D. F. CARPENT. *Glasgow M J* 1935, 124: 77.

Regarding the treatment of carcinoma of the prostate gland with radium. E. CHAUDVIN. *France med. Par* 1935, 43: 1439.

Personal experiences with prostate resection. H. S. BROWNE. *J Oklahoma State M Ass* 1935, 23: 371.

A converting or observation sheath for the Berman-McCarthy resectoscope for greater precision in visualizing the results of resection. P. E. B. FOLLEY. *J Urol* 1935, 34: 344.

Sequele and complications after apparent cure following suprapubic prostatectomy. UREAN and GEFARON. *J. d'anal. med. et chir* 1935, 40: 5. (134)

Spontaneous torsion of the spermatic cord, a case report. T. TOSHIKAWA. *Fukushima J Med*, 1935, 43: 200.

Anatomical and histological results of the Semmich operation. PETER and FOUQUAT-BESON. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 479.

Maldevelopment and misdevelopment of the testes: report of treatment with the anterior pituitary like gonadotropic hormone from the urine of pregnant women. C. B. DODD. *Am J Dis. Child*, 1935, 50: 640. (135)

The undescended testicle. J. B. PRINCE and R. CONY. *J Iowa State M Soc* 1935, 25: 547.

The management of undescended testicle. C. M. McKEOWN and E. EWING. *J Am M Ass* 1935, 105: 1372.

The treatment of undescended testis. E. D. McCORMACK. *Lancet*, 1935, esp. 753.

The indications for and end results of operations for undescended testicle. T. TERRY. *Clin. chir* 1935, 5: 714. (135)

Suppurative orchitis, its diagnosis and treatment. C. P. MAYER. *J. Urol* 1935, 34: 334. (135)

Staphylococcal orchid epididymitis with peritestic reaction. FARRINGTON. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 473.

Chemospermatophores of the testicle. BARNON. *Rev. de chir. Par* 1935, 34: 643. (136)

Miscellaneous

Recent advances in urology. A. E. RICHES. *Practitioner* 1935, 125: 490.

A new cystoscope holder for demonstrative purposes. M. D. F. BLASCO. *J Urol* 1935, 34: 337.

Aortography in the service of urology. V. COMPTON. *Arch. d. mal. d. reins et d. organes genito-urinaires*, 1935, 9: 473.

The rheumatism of pain from urological investigation. G. PARKER. *Brit J Urol* 1935, 7: 40. (136)

Retention of urine due to epidermis, with a discussion of the mode of action and a therapeutic usage. J. J. VALLERON and J. B. FITZGERALD. *J Urol* 1935, 34: 314.

Urological pathology. G. T. SCHWARTZ. *California & West Med* 1935, 43: 366.

Disturbances of the gastro-intestinal tract associated with diseases of the genito-urinary tract. W. E. LOWRY. *Surg. Clin North Am* 1935, 1: 81.

Chronic urinary-tract infection. L. T. SUMNER. *J. Lancet*, 1935, 53: 641.

Advances in the treatment of cerebral diseases. R. LIPS. *Practitioner*, 1935, 135: 400.

Genito-urinary localization of onion bacillus infections. E. CHAUDVIN and J. PIERRE. *Arch. franso-belges de chir* 1935, 34: 906.

The old and the new in the management of testis gonorrhea. A. L. STOCKWELL. *J Missouri State M Ass* 1935, 25: 387.

Lymphogonaditis inguinalis. R. T. RUSSELL. *Virginia M Month*, 1935, 63: 380.

Studies on the fertility and biology of the human sperm. G. V. SARGE and G. VALLERON. *Gynecologia*, 1935, 1: 915.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- The longitudinal growth of the long bones J D BIGARD and M E. BIGARD Arch. Surg., 1935, 31 568
- Acrodysplasia Type syndactylic oxycephaly D M GREIG Edinburgh M J, 1935, 42 537
- Perosteal dysplasia of Porak and Durante R. L. GAVIOLI Semana méd., 1935, 42 709
- Dystrophies of the skeleton J F BRAILSFORD Brit J Radiol., 1935, 8 533 [157]
- Multiple exostoses in father and children C P G WAKELEY Proc. Roy. Soc. Med., Lond., 1935, 28 1630
- Osteopontilosis C G SUTHERLAND Radiology, 1935, 25 470
- Fragilitas ossium in a family showing both thickening and rarefaction of bones, relative lymphocytosis and raised serum phosphatase with absence of blue sclerotics and otosclerosis. H. S. LE MARQUAND and F. H. W. TOZER. Proc. Roy. Soc. Med., Lond., 1935, 28 1640
- Lipoid osteosis M FITE Bol y trab Soc de cirug de Buenos Aires, 1935, 19 790
- Lipoid osteosis O R. MAROTTOLI. Bol y trab Soc de cirug de Buenos Aires, 1935, 19 742
- Idiopathic steatorrhea with early osteomalacia F LANGMEAD Proc. Roy. Soc. Med., Lond., 1935, 28 1643
- Diaphyseal aclasis R. E. B. ELLIS Proc. Roy. Soc. Med., Lond., 1935, 28 1638
- The early diagnosis of bone diseases CUPEI Monatschr f Unfallheilk., 1935, 42 346
- A statistical study of osteomyelitis at the University of Kansas Hospital J B WEAVER. J Kansas M Soc., 1935, 36 403
- Osteitis deformans P ELLMAN Proc. Roy. Soc. Med., Lond., 1935, 28 1641
- Fibrous osteitis H MONDOR. J de chir., 1935, 46 355
- Bone changes simulating tuberculosis or tumor J F BRAILSFORD Lancet, 1935, 228 1487 [157]
- The diagnosis of Pott's disease M MARTÍNEZ MONTES Medicina, Madrid, 1935, 6 163
- Paget's disease, with the diagnosis of osteitis fibrosa, recognized as a sequela to trauma F SCHNEK. Arch f orthop Chir., 1935, 35 511
- Osteodystrophia fibrosa cystica localisata N B SHORRYEVITCH J Bone & Joint Surg., 1935, 17 996
- Parathyroid hyperplasia in osteodystrophia deformans of Paget and in healed osteodystrophia fibrosa generalisata. W BERBLINGER. Beitr z path. Anat., 1935, 94 558
- Advances in the treatment of certain skeletal diseases (osteitis fibrosa generalisata and osteitis deformans) L MICHAELIS Fortschr d. Therap., 1935, 11 415
- Hemangioma with fracture through the invaded bone. J H COUCH. Canadian M Ass J., 1935, 33 416
- The diagnostic value of phosphatase determinations in the study of bone tumors. C C. SNAPOVS and C C. FRANKEN. Ann. Surg., 1935, 102 555
- Multiple bone tumors with unusual diagnostic and therapeutic characteristics E L JENKINSON and J M FOLEY Am. J. Roentgenol., 1935, 34 457
- A case of multiple myeloma J NUNES DE ALMEIDA Arquivo de patol., 1934, 6 485 [158]
- A case of bone sarcoma treated by colloidal arsenic. A. C. HENDRICK and E F BURTON. Canadian M Ass J., 1935, 33 421
- Osteogenic sarcoma W C CAMPBELL J Bone & Joint Surg., 1935, 17 827
- Osteochondromatosis—osteocartilaginous loose bodies—in relation to osteogenesis and chondrogenesis G M GIULIANI Chir. d. organi di movimento, 1935, 21 124. [158]
- Roentgenological visualization of the joints STOER. Muenchen med. Wchnschr., 1935, 1 1057
- Foreign body in the joints in osteochondritis dissecans of Koenig LEFÈVRE and LAPORTE. J de méd de Bordeaux, 1935, 112 688
- Studies in arthritis E PRIBRAM and S FAHLSTROM. Med. Rec., New York, 1935, 142 329, 358
- The etiology of chronic arthritis C. S. KEEFER. New England J Med., 1935, 213 644.
- Specific and non-specific arthritis, with special reference to trauma. B H ARCHER. New England J Med., 1935, 213 799
- An evaluation of injury and faulty mechanics in the development of hypertrophic arthritis H. P. DOUB and H. C. JONES Am. J. Roentgenol., 1935, 34 315
- Experimental staphylococcal suppurative arthritis and its treatment with bacteriophage. G. A. L. INGE and J. W. TOMMEY, JR. Arch. Surg., 1935, 31 642 [158]
- Two cases illustrating the "rheumatoid" type of arthritis F BACH. Proc. Roy. Soc. Med., Lond., 1935, 28 1642
- Malanal therapy in rheumatoid arthritis R. L. CECIL, C. FRIESS, E. E. NICHOLLS, and W. K. S. THOMAS J. Am. M. Ass., 1935, 105 1161
- Tuberculous rheumatism. J. M. JARUFFE and J. RAMÓN ARANDES Rev. de cirug de Barcelona, 1935, 5 118
- Some considerations based on 300 cases of arthritis critically treated. R. PEMBERTON J Bone & Joint Surg., 1935, 17 870 [159]
- The non-operative treatment of chronic arthritis S. KLEINBERG Med. Rec., New York, 1935, 142 319
- Injuries to muscles and tendons K. O. HALDEMANN and R. SOTO-HALL. J. Am. M. Ass., 1935, 104 2319 [159]
- Traumatic ossifying myositis in a child. J. STEPHAN-CHERBULIEZ and E. A. ROBERT Rev. méd. de la Suisse Rom., 1935, p 764
- Fascial sarcoma and intermuscular myxoliposarcoma. J. EWING Arch. Surg., 1935, 31 507 [160]
- Acute suppurative gonococcal tenosynovitis. W. BIRNBAUM and C. L. CALLANDER. J. Am. M. Ass., 1935, 105 1025
- Anatomical observations on senile changes occurring in the shoulder E. L. KEYES J Bone & Joint Surg., 1935, 17 953
- A roentgenological study of acromial arthritis K. LINDBLOM. Acta chirurg Scand., 1935, 77 174.
- Cracking scapula. G. HOHMANN Med. Welt, 1935, p 1149
- Tuberculous osteitis of the scapula. A. F. BARTRONS Bol y trab Soc. de cirug de Buenos Aires, 1935, 19 697
- Avulsion of the distal biceps brachii tendon. D. G. LEAVITT and J. H. CLEMENTS. Am. J. Surg., 1935, 30 83
- Ruptures and dissections of the distal tendon of the brachial biceps. J. SENEQUE and R. BERTHE. J de chir., 1935, 46 347 [160]
- The traumatic origin of accessory bones at the elbow A. ZEITLIN J Bone & Joint Surg., 1935, 17 933
- Fibrosarcoma of the right forearm with extensive growth into the cephalic vein. G. G. DAVIS Arch. Surg., 1935, 31 531 [161]
- The regrowth of bone at the proximal end of the radius following resection in this region. C. J. SETTO J Bone & Joint Surg., 1935, 17 867 [161]

- Congenital elbow synostosis. R. E. DÓVYAN and A. O. ENCKEYERER. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 14: 774.
- Radio-ulnar synostosis. M. FITZ. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 10: 793.
- Post-traumatic cyst formation involving the styloid process of the ulna. W. STARK. Zentralbl. f. Chir. 1935, p. 378.
- The pathogenesis of Madelung's disease. H. L. ROCHER and J. CAYOT. J. de méd. de Bordeaux, 1935, 1: 576.
- A case of Volkmann's ischaemic contracture in a hemiplegic. J. G. PASCIAL and L. B. CASO. Rev. de ciruj. de Barcelona, 1935, 5: 93.
- Bone decalcification in hand infections. L. VERDELET. J. de méd. de Bordeaux, 1935, 11: 673.
- Pseudarthrosis of the hand. A. RUTER. Rosbl. Chir. Gynæk. C. chir., 1935, 14: 62.
- The recovery of function in the hand in chronic arthritis. J. G. KIRBY. J. Bone & Joint Surg. 1935, 7: 939.
- The painful back. A. M. RECHTMAN. J. Med. Soc. New Jersey 1935, 3: 58.
- The treatment of backache from the orthopedic standpoint. A. J. DAVIDSON and M. T. HOWITZ. J. Med. Soc. New Jersey 1935, 3: 580.
- Developmental changes in the vertebral articular facets. J. G. KIRBY. Radiology 1935, 35: 408.
- Absence of the apophyseal processes of the vertebrae at the thoracolumbar junction. T. BARNETT and E. WICKLER. Acta radiol. 1935, 10: 563.
- Some cases of epiphyse vertebrae. ALBERT and ROCHER. Bull. et mémoires Soc. d' chirurgiens de Par. 1935, 47: 434.
- Several cases of epiphyse of the vertebrae. H. L. ROCHER and R. OUTAU. J. de méd. de Bordeaux, 1935, 1: 601.
- Tuberculous curles of the vertebral bodies. G. G. ORNSTEIN and D. ULMAN. Quarterly Bull. Soc. New Hosp. New York, 1935, 1: 3.
- Spinal tuberculosis, climatic and operative treatment. F. H. ALDER. Am. J. Surg., 1935, 30: 60.
- Myelitis of the vertebral column. A review of the literature. M. MEYER and M. B. GALL. J. Bone & Joint Surg. 1935, 7: 857.
- Further case studies of tuberculous pathology with a consideration of the involvement of the intervertebral disks and the articular facets. C. E. AYERS. New England J. Med. 1935, 3: 716.
- Disease of the sacro-lumbar joint. Study of 400 cases. W. DUVYAN and D. W. COLLEMAN. Surg. Clin. North Am., 1935, 5: 835.
- Osteoma of the sacrum. R. E. DÓVYAN, C. MANÍN, and J. C. LARCAÑO GONZÁLEZ. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 10: 795.
- Juxta articular traumatic periosteoma of the knee. H. L. ROCHER. J. de méd. de Bordeaux, 1935, 1: 677.
- The cause and treatment of so-called "malum coxae senile." HACKETT. München. med. Wochenschr. 1935, 1907.
- Kristization of the hip in long-standing disease of the hip. E. MOORE. Ztschr. f. orthop. Chir. 1935, 63: 480.
- Demonstrating osteochondritis of the hip. A. MOURCHET. Presse méd. Par. 1935, 43: 483.
- Rare, partial sequestrum of the head of the femur following trauma. W. HAASE. Zentralbl. f. Chir. 1935, p. 907.
- Fracture and sequestration of solitary cyst of the femur. M. FITZ. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 4: 695.
- Osteogenic sarcoma of the femur. R. MORENO. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 10: 647.
- Osteogenic sarcoma of the femur. M. GARCIA. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 9: 795.
- The direct viability of meniscus of the knee. A. DELLA SANTA. Radiol. med. 1935, 32: 839.
- Secundary cartilages of the knee. The "Jemp sign." R. FROCHOTTE. J. Bone & Joint Surg. 1935, 17: 946.
- Patella tripurita. J. L. LAVACA and E. BAMBAL. Semina med. 1935, 43: 1190.
- Non specific diseases of the knee. H. SCHOTT. Nord. Kirf. Förh. 1935, 30.
- Chondrosarcoma of the knee. J. ZARINHA. Chir. Carr. Rocha, 1935, 2: 53.
- Calcification of the meniscus in joint cartilages. K. WOLKE. Acta radiol., 1935, 16: 577.
- Traumatic lesions of the cruciate ligaments of the knee. LEENHARD. Presse méd. Par. 1935, 43: 1409.
- A further note on the development of cysts in connection with the secondary cartilages of the knee joint. R. OLLERENSHAW. Brit. J. Surg. 1935, 23: 277.
- Operations upon the menisci of the knee and arthrodesis. K. KROCHTAL. Arch. f. orthop. Chir. 1935, 23: 526.
- A case of Volkmann's paralysis of the left lower extremity. GUYOT VILLAR, CHAVANAS, and COURRIAGES. J. de méd. de Bordeaux, 1935, 11: 680.
- Congenital hypoplasia of the tibia. A. AMORIN. Folio med. 1935, 16: 408.
- Amputation in the soft parts of the foot. NEWBORN. Zentralbl. f. Chir. 1935, p. 1804.
- Charcot's disease of the foot. E. M. VAN RUYCKE. J. Indiana State M. Ass., 1935, 28: 475.
- Result of a tarsometatarsal for club-foot. A. TAYLOR. Bull. et mémoires Soc. d' chirurgiens de Par. 1935, 7: 435.
- Flat-foot. A consideration of the anatomy and physiology of the normal foot, the pathology and mechanism of flat foot, with the resulting roentgen manifestations. M. KAPLAN and T. KAPLAN. Radiology 1935, 25: 475.
- Chondroma of the os calcis and (Rock). M. TROSTON. Kentucky M. J., 1935, 23: 448.
- Bunions. L. L. STANLEY and L. W. BANTA. J. Bone & Joint Surg. 1935, 7: 961.

Surgery of the Bones, Joints, Muscles, Tenders, Etc.

- The surgical treatment of joint tuberculosis. M. CLIVE LAMP. Surg. Gynec. & Obst. 1935, 6: 901.
- The treatment of osteoma. PHILIP and DELLEBANDIER. Presse méd. Par. 1935, 43: 499.
- The final operation, diaphyseal and epiphyseal graft. O. IVANOVICH. Bol. mémoires Soc. d' chirurgiens de Buenos Aires, 1935, 83.
- Bone graft by means of living bone paste. BAILLIET and ROCHER. Bull. et mémoires Soc. d' chirurgiens de Par. 1935, 47: 424.
- The treatment of tuberculous osteo-articular. JOAGOTY and D'HANOUT. Chir. y lab. 1935, 30: 80.
- Fever therapy in gonorrheal arthritis and chancres. T. G. SCHWABEL and F. FETTER. Ann. Int. Med., 1935, 9: 398.
- Intravenous injection of colloidal sulphur in the treatment of rheumatoid and osteo-arthritis. D. SAMUR and J. SPANNOCK. Med. Rec. New York, 1935, 141: 332.
- The treatment of arthritis with colloidal sulphur. A report of 30 cases. S. C. WOLBERG. South. M. J. 1935, 28: 875.
- The surgical aspects of infectious arthritis. M. B. COOPERMAN. Med. Rec. New York, 1935, 14: 335.
- Amputation of the knee joint in chronic arthritis. A report of cases. S. D. DA. S. North. M. J. 1935, 25: 867.
- The treatment of congenital torticollis by tenotomy and tenectomy of the sternocleidomastoid muscle. C. LARSEN. J. de méd. de Bordeaux, 1935, 1: 696.

- The results of treatment of fractures of the femur. L. BORDIER. *Arch. f. orthop. Chir.* 1935, 35, 466. [164]
 Complete lateral dislocation of the knee joint. A. M. FORDHAM. *J. Am. M. Ass.* 1935, 107, 171.
 Recurrent dislocation of the patella. J. A. DICKSON. *Cleveland Clin. Quarterly* 1935, 1: 45.
 The use of Kirschner wire in maintaining reduction of fracture dislocations of the ankle joint. A report of two cases. J. DENTON. *J. Bone & Joint Surg.* 1935, 17, 990.
 An unusual fracture of the tibia. R. V. GRAMAN. *Med. J. Australia*, 1935, 3: 593.

- Fracture of the os calcis. R. M. PIERA. *Rev. mex. de ciruj. plast. y clasic.* 1935, 3: 404.
 Fractures of the os calcis: their therapeutic problems. H. MURPHY. *Presse med. Par.* 1935, 45: 2449.
 Open fracture of the metatarsals. F. JORDAN VIDAL. *Rev. de ciruj. de Barcelona*, 1935, 3: 108.

Orthopedics in General

- Principles in orthopedic surgery. Glasgow M. J. 1935, 124: 121.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

- The demonstration of collateral venous circulation in the abdominal wall by means of infra-red photography. C. JONES. *Am. J. M. Sc.* 1935, 190, 478.
 Arteriosclerosis of the lower extremities. J. NAULLEAU. *Presse med. Par.* 1935, 45, 1970.
 Stenosis of peripheral vascular phenomena. IV. The effect of artificial fever on the pulse volume changes of the finger. C. A. JOHNSON & OGDON, and G. SCURFMAN. *Am. J. M. Sc.* 1935, 190, 483.
 The role of peripheral circulatory failure in clinical shock case. D. W. ARCHLEY. *New England J. Med.*, 1935, 213, 861.

- The etiology of degenerative vascular disease. H. B. SPRAGUE. *New England J. Med.*, 1935, 213, 859.
 Arterial spasm in the extremities. W. J. M. SCOTT. *Ann. Surg.* 1935, 100, 337. [164]
 A suggestion for simple treatment of acute arterial spasm. E. P. LUDMAN. *Am. J. M. Sc.* 1935, 190, 450.
 The injection of varicose veins and other structures. CHORLEY. *New Zealand M. J.* 1935, 34, 311.
 Conservative and radical measures in the treatment of ulcer of the leg: a study of technique, indications, and results. B. DOUGLAS. *Surg. Gynec. & Obst.* 1935, 6: 453.

- A case of arterial and venous anastomosis of the neck. G. MOSEV. *Ber. bulg. chir. Ges.* 1935, 1: 303.
 Traumatic phlebitis and thrombosis due to effort. X. J. COVATAS. *Presse med. Par.* 1935, 45, 1418.
 Phlebitis, thrombosis, and thrombophlebitis of the lower extremities. L. M. ZIMMERMAN. *Surg. Gynec. & Obst.* 1935, 61, 443.
 The so-called traumatic venous thrombosis of the upper extremity. E. LYNNORSEN. *Acta chirurg. Scand.* 1935, 77, 11. [164]
 The diagnosis of parastitis nodosa. W. S. MINOCHIN and J. C. MCCARTER. *Am. J. M. Sc.* 1935, 190, 491. [167]

- Perforating nodosa without peripheral nodules diagnosed as varicose. A. BENCORT. *Am. J. M. Sc.* 1935, 190, 317. [167]
 A cavernous hemangioma of the nose of a fat. KNOX. *Zentralbl. f. Chir.* 1935, p. 2318.
 The results of sympathectomy in Berger's disease and the Brown test. P. VALDONI. *Folia Med. Koro.* 1935, 41, 98. Chir. 199.

- Carotid section in the treatment of painful syndromes of the head and face. H. MATRANO. *Folia med.* 1935, 10, 437.
 Preliminary report of the Pavlov treatment at the State University of Iowa. H. M. KOENIG and A. E. FEILER. *J. Iowa State M. Soc.* 1935, 25, 549.

Blood Transfusion

- Non-operative treatment of inadequate peripheral distribution of blood, passive vascular exercises and local hyperthermia. L. G. HEINMANN. *J. Am. M. Ass.* 1935, 105, 1156. [167]
 Blood transfusions in internal medicine. H. BUCKLE-WILKINSON. *Zschr. f. inn. Med. Pathol.* 1935, 38, 177.

Reticulo-Endothelial System

- Vasodilation of the reticulo-endothelial system by the injection of colloidal thorium dioxide (Thorotrast). S. A. RÖNNER and B. I. GÖRANSSON. *Acta J. Roentgenol.*, 1935, 34, 433.

Lymph Glands and Lymphatic Vessels

- Congenital lymphangiectasis (lymphedema). P. R. MAHONY and K. V. ASHLEY. *Am. J. Dis. Child.* 1935, 50, 945.
 Acute lymphatic leukosis in a child of four years with severe granulocytic phase preceding a remission. L. B. FLEURY. *Ann. Int. Med.* 1935, 9, 458.

SURGICAL TECHNIQUE

Operative Surgery and Technique: Postoperative Treatment

- The injection treatment in surgery. ROSS. *New Zealand M. J.* 1935, 34, 319.
 The treatment of cholelithiasis. M. ROCHETTE. *Presse med. Par.* 1935, 45, 451.
 The treatment of the post-hemorrhagic state. W. HUNT. *J. Obst. & Gynec. Brit. Emp.* 1935, 42, 854.
 Muscle grafts for hemostasis in general surgery. H. M. CLUTE. *New England J. Med.* 1935, 213, 746.

- Surgical repair following severe burns of the face. G. SARTORIUS-ROSSER. *Bull. et mém. Soc. d'chirurgiens de Par.* 1935, 97, 39.
 Electrotherapeutic measures in benign and malignant skin disease. E. C. FOX. *Texas State J. M.* 1935, 31, 403.
 The use of diathermy in treating patients with cancer. I. T. NATHANSON and E. M. DALLAN. *New England J. Med.* 1935, 213, 741.
 Closure of a postoperative wound with irradiated petrolatum. W. DEUTSCH, JR. *J. Indiana State M. Ass.* 1935, 28, 499.

Some remarks on the indications for Trendelenburg's operation in reference to an operated case G PETTERSON
Acta chirurg Scand., 1935, 77 163
Rapid diagnosis of metabolic disturbances in the post-operative period R LETULIE Presse méd, Par, 1935, 43 1568

Postoperative gas pains. E J OTTENHEIMER. New England J Med., 1935, 213 608
Prophylactic autohemotherapy for alleviation of post-operative pulmonary complications G KÁRPÁTI Magyar Orvostud., 1935, 4 121
Recovery from respiratory paralysis by suboccipital puncture and injection of caffeine M STEINBRUECK. Zentralbl f Chr., 1935, p 1995
Postoperative thrombosis and embolism R FOURNIER. Bull Soc d'obst. et de gynéc de Par, 1935, 24 498
The frequency of thrombosis and embolism. A E SITTSEN. Klin. Wchnschr., 1935, 2 1172
The prophylaxis of thrombosis and embolism. DENK. Zentralbl. f Chr., 1935, p 1940
The treatment of postoperative tetany with A T 10
T EKBLOM Acta chirurg Scand., 1935, 77 125
A study of disruptions of abdominal wounds A H. MILBERT Arch Surg., 1935, 31 86

Antiseptic Surgery, Treatment of Wounds and Infections

The treatment of severe cutaneous burns J N WALSH J South Carolina M Ass., 1935, 31 189
War experiences in the treatment of wounds F PUTZU Rassegna internaz di clin. e terap., 1935, 16 923
Extensive burns and scalds W C WILSON Edinburch M J., 1935, 42 177
Thermal burns J GUNN and J A HILLSMAN Ann Surg., 1935, 102 429
The bleeding volume in severe burns H N HARKINS Ann Surg., 1935, 102 444
The bacterial infection of burns R CRUICKSHANK J Path. & Bacteriol., 1935, 41 367
Tetanus and its treatment. M GAGE and N DEBAKEY Am J Surg., 1935, 30 157
Should serum prophylaxis against tetanus be used in every open injury? H KUNZ Wien. med Wchnschr., 1935, 1 713
Evipan in the treatment of tetanus H DAGULF Svenska Lakartidningen, 1935, p 1046
The treatment of tetanus with avertin J JACOB 1934 Jena, Dissertation
A study of forty cases of tetanus at the Surgical Clinic of the University at Giessen, with a contribution to the subject of the changes in the spinal column following tetanus, and a statistical study of the deaths from tetanus in the Province of Oberhessen in the period from 1923 to 1932 F M CLARENZ 1935 Giessen, Dissertation.
Facial erysipelas evaluation and comparison of specific antiserum and ultraviolet therapy H J LAVENDER and L GOLDMAN J Am M Ass., 1935, 105 401
The treatment of erysipelas E FUCHSIG Wien med Wchnschr., 1935, 2 802
An unusual case of actinomycosis of the hand. R S HOLLINGSWORTH J Am M Ass., 1935, 105 1266
The problem of rabies W B GRAYSON and G HASTINGS South M J., 1935, 28 924
Gas gangrene and gas infections R K GHORMLEY J Bone & Joint Surg., 1935, 17 907
Active immunization against poliomyelitis M BRODIE and W H. PARK. J Am M Ass., 1935, 105 1089
The biological treatment of local pyogenic infections E LEYER. Schweiz med Wchnschr., 1935, 1 73

Local bacteriophage therapy H THIBAUDENQ Presse méd., Par., 1935, 43 1514
The treatment of septic diseases by artificial abscess H von BLOMBERG and S von FORSTER. Muenchen med Wchnschr., 1935, 1 783

Anesthesia

Anesthesia in infant surgery M E BOTSFORD California & West. Med., 1935, 43 271
Anesthesia by the closed method T A B HARRIS Lancet, 1935, 229 817
New anesthetic agents and methods F B PARSONS Practitioner, 1935, 135 577
Evipan sodium anesthesia, its past and future W BAETZNER 59 Tag d deutsch Ges f Chr., Berlin, 1935
The use of helium as a new therapeutic gas A L BARACH Anes & Anal., 1935, 14 210
Anesthesia in the Kirschner Clinic ESCUDERO BUENO Arch de med., cirug y especial, 1935, 16 619
Denarcotization or resuscitation of anesthetized patients P M WOOD Anes & Anal., 1935, 14 234
The pro and con of the absorption technique in general anesthesia E I MCKESSON and K. C MCCARTHY Anes. & Anal., 1935, 14 229
Gas anesthesia under positive pressure G KAYE Brit. M J., 1935, 2 618
Long anesthetics with nitrous oxide and oxygen K C MCCARTHY Anes & Anal., 1935, 14 238
A new inhalation narcotic, vinethen. W BAETZNER 59 Tag d deutsch. Ges f Chr., Berlin, 1935
One hundred and twenty operations under combined ether and carbon dioxide anesthesia I G MORENO and A. DUARTE Bol y trab Soc de cirug de Buenos Aires, 1935, 19 736
Endotracheal nitrous oxide-oxygen-ether anesthesia in neurological surgery N A GILLESPIE Anes. & Anal., 1935, 14 225
The value of ether and chloroform narcosis in the treatment of cancer R. W BENNER Anes & Anal., 1935, 14 205
Convulsions under ether anesthesia. H J KING Am J Surg., 1935, 30 182
Renal complications following general anesthesia induced with ether CARDIA-LIGAS Ann ital di chir., 1935, 14 501
The pendural segmental anesthesia of Dogliotti L CAPOREALE Arch d. mal. d reins et d organes genito-urinaires, 1935, 9 459
Spinal anesthesia in obstetrics and gynecology, with particular reference to biochemistry of the cerebrospinal fluid and of the cerebrospinal cisterns. E PREISSECKER. 1934 Vienna, Maudrich
Spinal anesthesia with percain in 800 gynecological operations and abdominal surgery A VILLAR. Bol Soc. de obst. y ginec. de Buenos Aires, 1935, 14 305
Experiences with Kirschner's spinal anesthesia A report on 2,500 cases PHILIPIDES Arch. f klin. Chr., 1935, 181 479
Low blood pressure following spinal anesthesia, methods of prevention. A. LLauradó Rev de cirug de Barcelona, 1935, 5 134.
Circulatory failure during and after operations following the use of spinal anesthesia. E. PREISSECKER. Zentralbl. f Gynaek., 1935, p 1819
Premedication for local anesthesia. C E CORLETTE Med J Australia, 1935, 2 1
Allergic shock from local and general anesthesia. G L WALDBOTT Anes & Anal., 1935, 14 199

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

- The protection of the radiologist. G. E. FRANKLIN. *Am J Roentgenol* 1935, 34, 373.
- Progress in the design of shock proof roentgen tubes for therapy and industrial roentgenography. M. J. CHASE. *Am J Roentgenol* 1935, 34, 518.
- Experiences with Vårdar and Wilka circuitized high-tension generators in X-ray therapy. R. THOMAS. *Acta radiol* 1935, 26, 6.
- Factors influencing the quantitative measurement of the roentgen ray absorption of tooth slabs. I. Radiative factors. H. C. HODGE, G. VAN HUYSEN, and S. L. WARRER. *Am J Roentgenol* 1935, 34, 53.
- Factors influencing the quantitative measurement of the roentgen ray absorption of tooth slabs. II. Filter factors. H. C. HODGE, G. VAN HUYSEN, and S. L. WARRER. *Am J Roentgenol* 1935, 34, 539.
- Roentgen penetration by stereoradiography. C. R. JORDAN. *Radiology* 1935, 35, 49.
- Scalography, with particular reference to neoplastic diseases. H. T. KIRK, J. W. BRICE, and J. J. WOLFE. *Am J Roentgenol* 1935, 34, 283.
- A new roentgenographic technique, presentation of a section of an organism. MORRIS KAHN and BERNARD FROESE. *Med Par* 1935, 43, 1535.
- Roentgen diagnosis of fractures of the base of the skull. W. GORDON. *Am J Roentgenol*, 1935, 34, 578 [178].
- A new technique for the roentgen examination of the shoulder joint. H. JORDAN. *Radiology* 1935, 35, 480.
- The analysis of the roentgen shadow of the cardiac vessels, especially the determination of the individual sections in the corpse. K. KIRAKI. *Acta scholae med. univ. Iap.*, Kyoto, 1935, 18, 5 [176].
- Direct X-ray cinematography with a preliminary note on the nature of the non-proliferative movements of the large intestine. A. E. BANCALY. *Brit J Radiol*, 1935, 8, 642.
- Low-voltage X-ray therapy. J. M. W. MONTGOMERY, D. HODGE, and W. V. MATHIAS. *Brit M J* 1935, 1, 763.
- Variations in the sensitivity of the cell to radiation in relation to mitosis. J. C. MOTTREAU. *Brit J Radiol* 1935, 8, 643.
- On depth doses of X-rays. L. H. CLARK and E. W. CHAMBERLAIN. *Brit J Radiol* 1935, 8, 65.
- Our changing concepts regarding the skin dose, with some notes on the production of epidermolysis. W. L. MATTHEW. *Am J Roentgenol* 1935, 34, 497.
- The effect of introduction of the pituitary in dysmenorrhea. R. R. NEWELL and A. V. PETTIT. *Radiology* 1935, 35, 444.

- Roentgenological bone changes in sickle cell and erythroblastic anemia. A. G. CHODURA. *Am J Roentgenol*, 1935, 34, 497 [179].
- X-ray therapy in leukemia. L. G. ECKHARD and M. O. DITTMER. *J Iowa State M Soc* 1935, 35, 551.
- Actinomycin and roentgen therapy with an illustrative case. H. FAIR. *Radiology* 1935, 35, 308 [179].
- Neoplasms of the oral and upper respiratory tracts treated by protracted roentgen therapy. W. HARTZ. *Am J Roentgenol* 1935, 34, 43.
- Xanthomas. A case of Schneider-Christians disease treated by irradiation. H. I. THOMPSON. *Radiology* 1935, 35, 440.
- The indications for irradiation in the treatment of malignant tumors. U. V. PORTHANN. *Surg Clin North Am* 1935, 35, 963.
- Combined distance radiation of hypopharyngeal cancer. B. CASE and F. M. ALLICOTT. *Lancet*, 1935, 229, 631 [180].
- An attempt to develop reduced radiosensitivity in experimental neoplasms by means of roentgen irradiation. M. SUGIYAMA. *Acta radiol* 1935, 26, 545.
- Radiotherapy of sarcomas of the soft parts (on the basis of statistical analysis). T. LUCUTIA. *Radiology* 1935, 35, 403 [180].

Radium

- A biological assessment of radium gamma rays. F. M. EXNER and C. PACKARD. *Radiology* 1935, 35, 39.
- An application of a new dense tungsten alloy in tele-radium therapy. L. G. GARDNER and J. READ. *Brit J Radiol* 1935, 8, 661.
- Radium treatment of non-malignant conditions. J. ARAUJO. *Rev mexicana de ciruj. ginec. y obstet* 1935, 3, 334.
- Radium treatment of cancer of the rectum. W. M. SUTHERLAND. *Am J Roentgenol* 1935, 34, 496 [182].

Miscellaneous

- Newer developments in physical therapy of chronic arthritis. R. KOVACS. *Med Rec New York*, 1935, 147, 333.
- Radiation therapy in the treatment of disease. C. E. VICTOR. *J Missouri State M Ass* 1935, 32, 409.
- A case of absolute leukoderma to ultraviolet radiation. MARTIN-LAVAY. *Arch d mal. d'oeux et d'organe genito-urinaires*, 1935, 9, 475.
- Bactericidal action of short and ultrashort waves. C. K. GALE and D. KILLER. *J Lab & Clin Med* 1935, 21, 3.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

- Lymphatic connections between the first phalanx of the fingers and the carpal metacarpal joints. J. SEJMAN. *Konst. Chir. Gynaec. C. char* 1935, 4, 80.
- Aerophagocytosis. F. J. S. GOWAN. *J Obst & Gynaec Brit Emp* 1935, 42, 87.
- Tremor of the hand. R. L. HOLY, See H. DALE, L. O. SARGENT, H. CARLTON, H. E. D. GALE, and D. SLOAN. *Proc Roy Soc Med Lond* 1935, 28, 1473 [183].

- Reactions in the tissues to the presence of metallic foreign bodies. W. GIERLACH. *Zentralbl. L. Chir* 1935, 7, 18, 5.
- Cancer disease and its relation to tissue saturation with nitrogen. C. W. SWILLING, J. A. HARRIS, I. B. POLAK, and R. A. HAYDEN. *U S Nav M Bull* 1935, 33, 634.
- Hypothyroidism headache. P. A. ORAT and H. I. PERKINS. *Lancet* 1935, 10, 540.
- A contribution on the endocrine glands in the pathogenesis of arterial hypertension. M. ROCK. *Stratford Med* 1935, 5, 1320.

- Thrombocytopenic purpura. T C TERRELL. Texas State J M, 1935, 31 380
- The removal of sebaceous cysts of the skin M I. BOZZINI. Rev. méd. d. Rosario, 1935, 25 800
- The treatment of diabetic gangrene W A STEEL. Pennsylvania M J, 1935, 39 22
- Gangrene of the foot in the diabetic. L RAMOND. Presse méd., Par., 1935, 43 1441
- Agranulocytosis, etiology, diagnosis, and treatment. R. R. KRACKE and F P PARKER. South. M J, 1935, 28 911
- Granulocytopenia R G DAVIS U S Nav M Bull, 1935, 33 466
- Drug or protein allergy as a cause of agranulocytosis and certain types of purpura F T HUNTER. New England J Med, 1935, 213 663
- Agranulocytosis with purpura hemorrhagica following gold therapy P ELLMAN and J S LAWRENCE. Brit. M J, 1935, 2 622
- Pulmonary fat embolism. K IKEDA. Minnesota Med, 1935, 18 636
- The origin of fever in traumatic fat embolism Clinical and experimental researches W RUECKERT. Deutsche Ztschr. f. Chir., 1935, 245 36 [183]
- Pathological and immunological problems in the virus field T M RIVERS. Am. J M Sc., 1935, 190 435
- Immunological applications of placental extracts, effectiveness by oral administration. C F MCKHANN, A. A. GREEN, L E ECKLES, and J A. V DAVIES. Ann. Int. Med., 1935, 9 388
- The morphological reaction of the blood in infections L. ASCHOFF. Klin. Wchnschr., 1935, 2 985
- Trauma and surgical tuberculosis. E SCHNEIDER. 1935. Stuttgart, Enke.
- Advances in our knowledge of hydatid disease during the twentieth century H R. DEW. Brit. M J, 1935, 2 620.
- Hydatid cysts. H. ARDAO. An. Fac. de med. de Montevideo, 1935, 20 166
- An unusual site for a hydatid cyst. J M L DANG. Indian M Gaz, 1935, 70 566
- Regarding the surgical treatment of a calcified hydatid cyst. P GOINARD and M VIGNARDOU. J de chir., 1935, 46 321
- The serological classification of hemolytic streptococci in relation to epidemiological problems. H. F SWIFT, R. C LANCEFIELD, and K GOODNER. Am J M Sc., 1935, 190 445
- Congenital syphilis in children. F R. SMITH, JR. Am. J Syphilis & Neurol., 1935, 19 532
- The diagnosis of infantile congenital syphilis during the period of doubt. N R. INGRAHAM, JR. Am. J Syphilis & Neurol., 1935, 19 547
- The operative treatment of incomplete fistula in the ischio-rectal fossa. A. LAEWEN. Zentralbl. f. Chir., 1935, p 1746
- Tumors and associated problems F K SOUKUP U S Nav M Bull, 1935, 33 494
- The historical background of the cancer problem W E SANDERS. J Iowa State M Soc., 1935, 25 524.
- Recent advances in cancer research made by clinical observations W SCHILLER. Irish J M Sc., 1935, 118 573
- The early diagnosis of cancer by blood analysis. P BOUCHMANN. Rev. de chir., Par., 1935, 54 587
- Cancer of the skin R L SUTTON, JR. J Oklahoma State M Ass, 1935, 28 364
- On the dysontogenetic origin of basal-cell carcinoma J MCFARLAND, E F CICCONI, and J GELEHRTER. Am J Cancer, 1935, 25 273 [184]
- Pathological rarities in cancer, two unusual cases A. M SALA. Radiology, 1935, 25 437
- The modern treatment of cancer J E GENDREAU. Irish J M Sc., 1935, 118 584.
- The treatment of carcinoma in daily practice. A. NEUMANN. 1935. Vienna, Leipzig u. Bern, Weidmann.
- An artificial fever of 111.4 degrees F, as a means of destroying cancer in the animal body G WALKER. Am. J Cancer, 1935, 25 301
- The study and treatment of cancer by proteolytic enzymes, preliminary report. H. C CONNELL. Canadian M Ass J, 1935, 33 364.
- Surgery in the treatment of primary skin carcinoma H. T. SIMMONS. Lancet, 1935, 229 938
- The differential mortality from cancer in the white and colored population. S J HOLMES. Am. J Cancer, 1935, 25 358
- Primary spindle-cell sarcoma associated with a primary scirrhous carcinoma. W C CURPHEY. J Kansas M Soc., 1935, 36 412
- Giant-cell sarcoma A. M H. GRAY. Proc. Roy. Soc. Med., Lond., 1935, 28 1552
- A case of sarcoma of the thigh A. C DEY. Indian M Gaz, 1935, 70 564
- Some recent advances in surgery H BAILEY. Practitioner, 1935, 135 526
- Amino-acids in surgery R. E DONOVAN. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 19 788
- Surgical care of patients in the extremes of life. J J MORTON. Am. J Surg., 1935, 30 92
- The Schilling count in acute surgical conditions E P KUNKEL. U S Nav M Bull., 1935, 33 451
- Surgical emphysema simulating gas gangrene. DICKSON. New Zealand M J, 1935, 34 331

General Bacterial, Protozoan, and Parasitic Infections

- Subacute streptococcus viridans septicemia. L HAMMAN and W F RIENHOFF, JR. Bull. Johns Hopkins Hosp., Balt., 1935, 57 219
- Fatal cases of septicemia caused by the bacillus coli following gastric operations. F W ILFELD. Arch. Surg., 1935, 31 632
- The principles of the treatment of septicemia W J M SCOTT. J Am. M Ass, 1935, 105 1246 [184]
- Chronic suppuration. A. VALERIO. Arch. brasil. de med., 1935, 25 154.

Ductless Glands

- Studies on the effect of human blood serum upon the growth of the rat. E K SHELTON, L A CAVANAUGH, and M L LONG. Endocrinology, 1935, 19 543
- Mental retardation associated with endocrine and non-endocrine conditions M B GORDON and L KUSKIN. Endocrinology, 1935, 19 561
- Organotherapy in mental retardation associated with endocrine and non-endocrine conditions M B GORDON, L KUSKIN, and J AVIN. Endocrinology, 1935, 19 572
- The effect of pitocin, pitressin, and antuitrin on fat-tolerance tests H. BROTHNER. Endocrinology, 1935, 19 587
- The endocrine glands in the pathogenesis of arterial hypertension. M ROCH. Bruxelles-méd., 1935, 15 1282
- Recent advances in treatment associated with the endocrine glands. E. C DODDS. Practitioner, 1935, 135 403
- A general outline of the surgical treatment of diseases of the endocrine glands G BUETNER. Handb. innere. Sekretion, 1933, 3 2019

The hypophysis and adjacent structures, their normal and pathological physiology A B LOCKHART Northwest Med 1935, 341-354

The significance of the different types of cells of the anterior pituitary W STORMAN Endocrinology 1935, 19, 595.

On the conditions necessary for the continuous growth of hyperphsectomized animals H. M. EVANS, I. FIDICHAUX, and M. E. SHAW Endocrinology, 1935, 19: 509

Interpretation of the lowered basal metabolic level D L. SEXTON Endocrinology 1935, 19, 570

Hyperparathyroidism, a real and practically important disease J HILLSTROM Nord med Tidnkr 1935, PP 371-372

Hyperparathyroidism with renal insufficiency D E. BELL and B S. GINSBURG Am. J. M. Sc. 1935, 140, 519

The relationship between the parathyroid glands and the sex hormones in totary E F McCOLLUM and J F. KEARNS, JR. Endocrinology 1935, 19, 531

Further studies on the thyroid and parathyroid glands L G ROWNTREE, J H CLARK, A STEINBERG, A M HAN 204, N H ENGLISH, and W A SWANSON Ann Int Med 1935 9: 559.

Surgical Pathology and Diagnosis

On the demonstration of particles of malignant growth in the sputum by means of the wet-film method L S DUDCROFT and C H. WHEATLEY J Laryngol & Otol 1935, 50: 75

Sternal punctures E SCHNEIDER Acta med. Scand. 1935, Supp. 64

Tissue diagnosis during operation the reliability of Terry's survival technique in 1,050 biopsies C A HILLMAN Surg. Gynec. & Obst. 1935, 61, 494

Experimental Surgery

The estrous cycles of mice during the growth of spontaneous mammary tumors and the effects of ovarian follicular and anterior pituitary hormones F. ALLIE, A. W. DODGE, L. C. WILSON, T. H. BURROGH, and W. U. GARNER Ann J Cancer 1935, 5, 20

Hospitals, Medical Education and History

Modern trends in surgery M THORPE J Oklahoma State M Ass 1935, 28, 151

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body is due chiefly to the anatomical relationships of the soft parts of the face which seem to favor the penetration of infectious material from furuncles into the deeper and surrounding layers. In addition, the close relationship of the facial veins to the veins within the skull and the internal jugular vein plays an important rôle. Moreover the condition is usually not a true furuncle but a carbuncle situated in an infiltration zone.

The exciting cause of facial furuncles is the yellow staphylococcus. The theory that facial furuncles are especially virulent is to be accepted with reservations. In most cases the condition runs an uncomplicated course and the treatment must be carried out with this fact in mind. Disturbance of the focus of inflammation must be avoided. Protection against mechanical irritations (pressing, scratching) absolute quiet by bed rest, and the interdiction of visitors and conversation are the chief requisites.

In mild cases the application of boracic vaseline without tight pressing or scratching bandages is usually sufficient to relax the inflamed skin and, by thoroughly softening it, to facilitate evacuation of the pus. In cases of medium severity it is necessary to resort to Bier's hyperemia of the neck continued for from twenty to twenty-two hours and repeated after an interval of from two to four hours. For such cases and mild cases the authors reject operative treatment as well as the injections of blood which Laeven always combines with incision. For the virulent cases with coma, delirium, a high temperature, and chills there is no agreement regarding treatment. According to Roedelius, a rise in the temperature above 38.5 degrees C. with serious local manifestations is a criterion of severity of the condition and marked local changes and a temperature under 38.5 degrees C. are characteristic of transitional cases. Bier and others have treated even the most serious cases successfully by cervical hyperemia and have thereby obtained good cosmetic results.

The choice of method for incision and evacuation of the inflammatory infectious secretions depends as much on the character and temperament of the surgeon as on the time of operation. It is of importance to bear in mind that the decompression effect of an incision does not extend farther than 3 mm. on each side. At any rate, one should proceed radically enough to render repeated incisions unnecessary. In the most serious cases no consideration can be given to the cosmetic effect. The value of vein ligation to prevent pyrexia in thrombophlebitis is doubtful. However in severe cases with recurrent chills it seems justifiable to attempt to reduce such pyrexia relapses by ligation of the internal jugular vein. (MAMM) CLARENCE C. REED, M.D.

LI, P. L., and CHI-KHIT YANG. An Inquiry into the Origin of the Mixed Tumors of the Salivary Glands, with Reference to Their Embryonic Interrelationships. *Am J Cancer* 935, 5 50

The authors study was based on twenty-five mixed tumors occurring in various locations in the

head other than the salivary glands. Eighteen were located on the face and scalp and seven in the oral cavity. All of them were removed from Chinese patients.

Mixed tumors of the salivary glands are probably embryonic tumors of local origin. From histological, regional, and histogenetic points of view they seem to fall into two groups—the intra-oral and the extra-oral. To the first group belong tumors arising from oral ectoderm within the oral cavity including tumors of the palate, gum, tongue, and salivary glands. The embryonic rests from which these neoplasms are derived are formed, along with the salivary and oral glands, from invagination of the oral ectoderm as assumed by Wilms. To the second group belong: (1) tumors resulting from ectodermal inclusions caused by the fusion of branchial clefts and various fissures of the head and neck, (2) tumors of the nasal cavity and its accessory sinuses arising from rests formed along with the normal mucous glands of these regions, (3) tumors of the orbit derived from rests formed from the conjunctiva together with the anlagen of the lacrimal glands and (4) various other mixed tumors of the lip, face, eyebrow and scalp assumed to have arisen from rests derived from the integument along with the anlagen of the hair follicles.

The histological similarities and differences of the mixed tumors and tumors closely allied to them are explained by differences in the origin and time of their rest formation. The location and frequency of occurrence are explained on the same grounds. In the formation of embryonic rests the influence of the time factor upon the expected potentiality of such rests is specially emphasized.

JOSEPH K. NARAT, M.D.

ETE

Wegler J.: Orbital Phlegmons (Über Orbitaphlegmonen). *Fortschr. Med.*, 1934, p. 85

In a period of two years the author had the opportunity to treat six patients for orbital phlegmon, a disease which, if not extremely rare, is nevertheless uncommon. He reports the cases of these patients briefly. All were severe cases. Three of the patients died of intracranial complications. The condition is always to be traced back to some condition of the accessory cavities and is accompanied by the most varied phenomena. Among the latter are subperiosteal abscess formation in the orbit, diffuse phlegmons, optic neuritis, meningitis, and brain abscess. One of the author's cases perhaps came late treatment by the specialist too late since on account of the predominant cerebral manifestations, the condition was first diagnosed as encephalitis. The correct diagnosis was not made until the patient entered the clinic.

The Ruch Hirschfeld statistics regarding the development of orbital phlegmons appear to be out of date. According to other reports (Mygind, 1930) 75 per cent of such phlegmons are of rhinogenic

origin Marx reported that of 274 patients given hospital treatment for disease of the nasal sinuses, 3 per cent had orbital complications. If the large number of patients given ambulatory treatment are included, the incidence of orbital complications in disease of the nasal sinuses falls from 0.3 to 0.4 per cent. In five of the author's cases the orbital phlegmon was due to disease of the ethmoid cells, and in one case to disease of the frontal sinus. The inflammation reaches the orbit most frequently as the result of osteitic changes with granulations, and next most frequently as the result of thrombosis and phlebitis of the vessels leading to the orbit.

The striking signs of a beginning orbital phlegmon are well-known: edema of the eyelids, protrusion of the eyeball, chemosis, and a central scotoma. The nasal symptoms are less conspicuous and the findings of rhinoscopy are sometimes insignificant. However following the use of adrenalin, pus is usually seen draining from the middle nasal duct. The roentgenogram is not always of aid as previous disease of the accessory cavities often leaves such permanent clouding that roentgen diagnosis may be very difficult.

In the differential diagnosis phlegmon of the lacrimal sac should be considered first and erysipelas and simple abscess of the eyelid next. As a rule the eye specialist is consulted first. However as soon as there is any uncertainty as to the nature of the condition the rhinologist should be consulted as soon as possible so that he may treat the causal ailment of the accessory cavity.

The author states that orbital phlegmons are quite rare in adults, whereas they are more frequent in children (scarlet fever). In spite of their alarming appearance, the manifestations usually disappear quickly under conservative treatment with hot poultices and nasal flushings. In scarlet fever infection operation is usually injurious though there are exceptions, even in the cases of small children. In chronic diseases of the nasal sinuses operation is nearly always necessary. The operative technique is known to the specialist from the literature.

Abscess in the contents of the orbit is extremely rare. In this condition great care is necessary in the exploratory examination because of the danger of secondary infection of the retrobulbar tissue. The prognosis is always very grave.

Of the author's six patients three died—all of meningitis. One had also an epidural abscess and a frontal lobe abscess. Even when healing occurs, sequelæ such as diplopia, weakness of vision, and even blindness often result.

(GERLACH) CLARENCE C. REED, M.D.

Callender, G. R., and Wilder, H. C. Melanoma of the Choroid. The Prognostic Significance of Argyrophil Fibers. *Am. J. Cancer*, 1935, 25, 251.

In a previous report it was shown that the more malignant tumors are of the epithelioid, fascicular, and mixed-cell types, and that the spindle-cell Subtypes A and B are comparatively benign.

Wilder's modification of Foot's stain is now used to demonstrate the finer fibrils in melanomas of the choroid, regardless of age or fixation of tissues. In 205 cases an apparent relationship between the fiber content and the prognosis was apparent. Fiber distribution varied to a marked degree in different tumors and in different areas in the same tumor. The diffusely cellular tumors with no fiber formation were rare. The tumors were grouped according to their fiber content as follows:

Group 1 Those having no fibers or fibers only in the interlobular stroma.

Group 2 Those having areas with and areas without fibers.

Group 3 Those having fibers among the tumor cells throughout all areas.

Group 2 was subdivided into (1) tumors having a definite preponderance of fiberless areas, (2) tumors in which the areas with and the areas without fibers were approximately equal in number, and (3) tumors with a definite preponderance of areas containing fibers.

Of the 205 cases, all which had not been followed for at least one year were discarded. The remaining 120 cases form the basis of this report. When all areas of the primary tumor contained argyrophilic fibers no metastases occurred. Metastases occurred in 36 per cent of the cases in which some areas of the primary tumor contained no fibers and in 57 per cent of those cases having fibers only in the stroma of the primary tumor. In the mixed group, those having some areas without fibers, 68 per cent of the patients died. In the group in which fibers were entirely absent except in the interlobular stroma, all the patients died. The classification of fiber content is an additional aid to the prognosis, abundant fiber production indicating a more favorable prognosis than decreased fiber production.

EDWARD S. PLATT, M.D.

Lijo Pavia, J. Primary Sarcoma of the Choroid. Early Diagnosis. Enucleation of an Eye with Normal Vision. (Sarcoma primitivo de la coroides. Diagnostico precoz. Enucleation del ojo con vision normal). *Rev. oto-neuro-oftalmol. y de ciruj. neural Sud-Americana*, 1935, 10, 229.

The author calls attention to the fact that primary sarcomas of the choroid may cause no symptoms in the beginning stage. The methods of examination on which he depends for diagnosis in this stage are binocular ophthalmoscopy supplemented by ophthalmoscopy with light containing no red, examination of the visual field four times at intervals of eight days, diaphanoscopy examination, and studies of the retina by means of black and white photography and chromoretinography.

The case he reports was that of a woman twenty-seven years of age who came to the clinic for treatment for a stubborn gastralgia and had no eye symptoms at all. Vision was normal in both eyes. At the author's clinic a systematic examination is made of the eye grounds in all cases. In the case reported

examination of the left eye with the Gullstrand-Zeiss binocular ophthalmoscope showed a swelling above and outside of the macula. The swelling was diagnosed as a primary sarcoma of the choroid and the diagnosis verified by examination of the visual field. As a test treatment with neosalvarsan proved ineffective enucleation of the eye was advised. Following removal of the eye the tumor was found to be a primary melanosarcoma of the choroid.

The operation was performed two years ago and the patient is still in excellent general health. The author regards it as probable that the tumor was extirpated near the close of its resting period before it had extended beyond the eye.

ARTERY Goss Moskowitz M.D.

EAR

Gray A. A.: The Treatment of Otosclerotic and Similar Types of Deafness by the Local Application of Thyroxin. *J Laryngol & Otol* 1935 50 749

The author states that in a large proportion of early cases of otosclerosis and so-called dry middle-ear catarrh, hearing can be improved and tinnitus relieved by the intratympanic injection of thyroxin. Cases in which the disease is in its latest stages do not respond. The presence of paracystic effusion is not a contra-indication. The treatment is simple and can be carried out without difficulty by any otologist. It is practically or entirely painless and does not interfere with the patient's activities.

The rationale of the treatment is based upon Gray's theory that otosclerosis is the result of a decrease in the blood supply to the organ of hearing due to gradual failure of the vasomotor responses. The thyroxin applied locally produces an active congestion without an inflammatory reaction, which continues for a long period of time.

It is not yet possible to say how often the treatment must be repeated. Improvement, when it occurs, lasts in some cases for several weeks, but sooner or later the effects of the treatment must be expected to pass off. JAMES C. BRANWELL, M.D.

Morris, J.: Characteristics and Properties of Electrical Deaf Aids. *J Laryngol & Otol* 1935, 50 309

The author states that, in spite of the large amount of work carried out, it is generally agreed that much more investigation to obtain data concerning human ears is necessary before an artificial ear with more nearly correct characteristics can be devised.

JAMES C. BRANWELL, M.D.

Turner-Rin, A.: Scientific Audiometry and Selective Amplification in the Design and Construction of Modern Deaf Aids. *J Laryngol & Otol* 1935 50 858

The author states that it is clear that the simple pathological subdivision of deafness into the conductive and the perceptive is inadequate. We must

reconsider and classify our patients in the light of their audiometric tests if we are to give them the full benefits of the advances of modern science.

JAMES C. BRANWELL, M.D.

MOUTH

Livingston, E. M., and Lisher H.: The Surgical Aspects of the Treatment of Carcinoma of the Tongue. *Am J Surg* 1935, 50 234

The authors emphasize the importance, in the control of cancer of the tongue, of dealing adequately with precancerous lesions. Leukoplakia alone accounts for 35 per cent of buccal cancers, and leukoplakia before the advent of cancer is curable. It is estimated that from 50 to 55 per cent of lingual malignancies could have been prevented. The technique of dealing with precancerous lesions of the tongue is presented.

In a discussion of the method and purpose of biopsy it is urged that repeated biopsies be done if the laboratory report does not agree with the clinical picture. The importance of excision biopsy where applicable, is stressed.

The value of surgery as an allied and supplementary measure to irradiation in the treatment of lingual neoplasms is emphasized, and surgical procedures for dealing with tongue lesions are described in detail. LOUIS J. BYARS, M.D.

PHARYNX

Martin, G. L.: Carcinoma of the Upper Pharynx. *Am J Surg* 1935, 50 56

This article deals only with carcinomas originating in the posterior nasopharynx, in and about the tonsil, on the base of the tongue back of the oropharyngeal papillae in the pyriform sinuses, and on the lateral walls of the oropharynx.

In pharyngeal cancer surgery is difficult and often mutilating, and its results are not encouraging.

The pharynx is inaccessible to a high degree, it is the site of delicate and concentrated function, and it contains septic material to which the surrounding tissues are not immune.

The divided-dose X-ray technique supplemented by interstitial radium irradiation offers a better chance for cure than surgery and frequently produces marked palliation in incurable cases.

The gold radon seeds have the following disadvantages. They are only 0.3 mm thick and allow some of the more irritating rays to pass through. It is difficult to plant such small structures in regular patterns in inaccessible locations. The seeds may slip out of place in the throat and be aspirated, thereby producing a lung abscess. If placed in contact with the epiglottis, they may cause necrosis of the cartilage. When planted in the upper lateral pharynx they sometimes set up a necrosis causing constant headache about the ear. They are expensive. Martin therefore uses weak radium-element needles which fulfill Regaud's principles.

Martin is of the opinion that extremely short wave lengths are not necessary for good results in the treatment of pharyngeal tumors. He uses 220 kv, a filter of 2.25 mm of copper and 1.0 mm of aluminum, a tube current of 20 ma, and a target-skin distance of 50 cm. These factors produce X-rays with an average wave length of about 0.11 angstrom units. The average dose (300r) can be administered in fifteen minutes. At times it is advantageous to use a Thoraeus filter (0.4 mm of tin and 0.25 mm of copper) which cuts the treatment time to thirteen minutes and slightly increases the depth effect. There are many other variable factors, such as the target-skin distance, the size of the daily dose, the size and distribution of treated areas, and the length of the total treatment period, which must be carefully thought out for each case if the best results are to be obtained. Most throat work has been done with a target-skin distance of from 50 to 60 cm, but radiologists who desire the greatest possible depth effect for a given skin reaction use 80 cm. The author treats the pharynx through two areas, one on each side of the neck. The areas are treated on alternate days and the daily dose varies from 200 to 300 r measured in the beam without backscattering. Only under exceptional circumstances are the areas larger than 10 cm in diameter. In most instances the exposures are calculated from penetration charts so that doses of from 3,000 to 3,600 r are delivered to the tumor, but in some cases smaller doses have been successful. The total time of treatment is usually about three weeks.

When large masses are present in the neck and the tumor is not extremely anaplastic, it is the author's custom to insert platinum radium needles measuring 5 cm in length beneath the involved areas. These needles are placed parallel with one another at intervals of from 1 to 1.5 cm and are left in place for seven or eight days. They have a wall thickness of 0.6 mm and contain 0.6 mgm of radium element per centimeter of active length. Divided doses of deep X-ray irradiation totaling about 2,000 r are given over the same region. This treatment is started while the needles are in place.

JOSEPH K. NARAT, M.D.

Mattick, W. L. The Treatment of Pharyngeal Cancer. Fractional Dose Methods of External Irradiation. *Arch. Otolaryngol.*, 1935, 22: 440.

To the French school under Regaud and Coutard belongs the credit of demonstrating the value of protracted treatment with fractional doses in treatment both with the gamma rays and with the roentgen rays. The most important factors involved are (1) optimal daily fractioning of the total dose, (2) the total duration or chronology of treatment in days or weeks, and (3) the production of a more intense reaction of the skin and mucous membrane, variously designated as "epidermolysis," "epidermitis," "epithelitis," and "mucositis."

The treatment of pharyngeal cancer by fractional dose methods of external irradiation as carried out

at the Buffalo Institute for the Study of Malignant Diseases may be classified into that administered with the radium pack and that administered by roentgen irradiation.

The pack method of treatment with radium is generally carried out with one or two packs. The larger pack contains 4 gm of radium element and has a filter consisting of 1 mm of platinum, 1.5 mm of steel, 0.5 mm of copper, and 1 mm of aluminum. In cases of pharyngeal tumors the portal generally used measures 10 by 10 cm and the distance from the skin is generally 10 cm. The pack delivers approximately 6 r per minute for the 6 cm distance and 4 r per minute for the 10 cm distance, as measured by the Victoreen dosimeter. The second pack, which is a combination of element and radon, has a filter of 1 mm of platinum, 1 mm of bakelite, 1 mm of copper, and 1 mm of aluminum. With this pack a smaller portal, which generally measures 5 by 5 cm, can be used at a distance of 6 cm. With the two packs it is customary to employ a single field over the side of the lesion, to attack the tumor by crossfire by two opposite fields or by the addition of a posterior field at a distance of 10 cm, and to supplement the two lateral fields, where the irradiation is generally given at a distance of 6 cm, with a portal measuring 5 by 5 cm. With the large pack at a distance of 10 cm the author customarily gives 10,000 mgm-hr daily for from eight to ten days, and with the smaller, combination pack at a distance of 6 cm, 3,000 mgm-hr daily for twelve days.

In its typical form the modified Coutard technique consists of approximately ten or eleven daily treatments to a 10 by 15 cm field over the side of the lesion with three or four supplemental treatments on the opposite side of the neck, continued until epithelitis is produced. Such treatments are given at a target distance of 50 cm at 200 kv and a rate of 23 r per minute through a Thoraeus filter equivalent to approximately 3 mm of copper. The daily increments are generally 340 r.

The author's experience in the treatment of approximately 500 patients with pharyngeal cancer has suggested the following conclusions:

- 1 The epidermolytic dose is approximately 65 per cent higher than the former therapeutic dose.
- 2 The cumulative effective dose of primary roentgen irradiation necessary for the production of epidermolysis computed by means of the appropriate tissue-recovery coefficients is approximately 1,300 r for the 0.16 Ångström effective wave-length and 2,000 r for the 0.11 Ångström effective wave-length.
- 3 Whereas a high total dose of roentgen irradiation is often reported as used in daily fractional protracted techniques, such high values are misleading and devoid of significance unless the total time over which the treatments were given and the daily increment in roentgens are also specified. The important consideration, therefore, is not the highest total dosage in roentgens which can be reported but rather a high enough cumulative effective dose to the skin or tissues to cause regression of the lesion.

without permanent damage to the tissue bed. Such a desired cumulative effective dose can be attained only by a properly selected daily increment of roentgens in accordance with the effective wave-length employed.

4. Whereas heavier filtration and a low roentgen dosage per minute rate were formerly considered essential, equally good results may be achieved with roentgen rays of the customary 0.16-Angstrom effective wave-length and with the usually rapid rate per minute.

5. By the adoption of these higher epidermolytic doses as routine whenever feasible, it is possible to combat previously resistant tumors of the pharynx more successfully and to obtain primary healing in a much larger group than was possible with the older method. However, it is still too early to draw definite conclusions regarding the incidence of five-year cures.

JOURNAL K. NARAY, M.D.

WEEK

Stabque J., and Leloup, M. Bilateral Cervical Rib. Unilateral Raynaud Syndrome. Late Result of Surgical Intervention. Removal of the Rib and Subclavicular Sympathectomy. Secondary Arteriotomy of the Humeral Artery (Côte caroté bilatérale. Syndrome de Raynaud unilatérale. Résultat éloigné d'une intervention chirurgicale: ablation de la côte et de la sympathectomie sous-clavière. Artériectomie secondaire de l'artère humérale) *Bull. de la Soc. de chir.* 935, 61, 1075

The case reported was that of a girl sixteen years old who for over two years had suffered from a series of sensory and motor disturbances in the right arm. There were pains which were sometimes spontaneous but were always provoked by movements of the arm. Weakness had been progressive and difficulty was experienced in performing light tasks such as sewing as well as heavy (arm) work which the patient's employment demanded. Exposure to cold produced cyanosis succeeded by pallor and loss of sensitivity to tactile, thermal and pain stimuli. Examination showed normal active movements of the right upper extremity but a diminution in strength and rapid fatigue as compared with the left. The reflexes were exaggerated. During repose the cutaneous sensitivity was normal, but on effort it was lost. There was a glove-like cyanosis of the hand with hyperhidrosis. The skin was thick and scaly and the muscles were slightly atrophied. The pulse was scarcely perceptible. Palpation and roentgenography disclosed bilateral cervical ribs.

At operation, the subclavian artery was found to pass over the cervical rib, lying in a groove. It appeared normal. Both the cervical and the first thoracic ribs were disarticulated and a periarterial sympathectomy was performed. This operation had no effect whatever upon the symptoms. A week later the humeral artery was exposed in the middle of the arm. It was extremely slender and did not pulsate. A segment 6 cm. long was excised. The immediate postoperative result was excellent, but

within two weeks the symptoms recurred. Six weeks later the left cervical rib was removed. When the patient was examined four years later a certain amount of improvement could be detected. The old symptoms were still present, but were less marked. Muscular strength had improved and the arm had increased in size.

In reviewing the general subject of cervical ribs the authors state that, of all cases discovered, only 10 per cent are associated with symptoms. The frequency of the anomaly is impossible to determine because it is certain that the condition is frequently not recognized. When symptoms occur they are of nervous origin in 70 per cent and of vascular origin in 30 per cent of cases. Among the complications, aneurysm has been observed. This is extremely rare. Most common is insufficient vascularization. The case reported by the authors is typical. Rarely the ischemia leads to gangrene.

The mechanism of the vascular disturbances is variable. The artery may be linked over the cervical rib or compressed between the cervical and the first thoracic rib. Occasionally it is compressed by fibrous bands. These bands may arise from the scalenus muscle. By some all of the symptoms are attributed to sympathetic irritation.

Ombredanne says that if the artery is penetrable the rib should be resected and a periarterial sympathectomy performed. When the artery is obliterated a segment of the vessel should be excised and removal of the rib becomes more or less optional.

A good result may be expected in about 85 per cent of the cases. ALBERT F. DE GROOT, M.D.

Friedgood, H. R.: Cyclic Responses of the Thyroid Gland to Experimental Excitation and Depression. *Arch. Int. Med.* 935, 56, 833

The experiments reported were carried out on rats given pups. Sixty-one of the animals received albalus pituitary extract 45; this extract and sodium iodide and 5 sodium iodide alone. Fifty were untreated. The basal metabolic rates were determined.

It was found that, in general, the behavior of the basal metabolic rate after the simultaneous administration of iodide and extract of the anterior lobe of the pituitary gland depended for the most part on the duration and location of the period over which the transitory depressant effect of iodine impressed itself on the cycle of hyperthyroidism caused by the administration of the pituitary extract.

PART STARR, M.D.

Horder Lord: Thyrotoxicosis. Its Medical Aspects. *Brit. Med. J.* 935, 2, 931

The author states that there is no evidence that the secretion of a pathological thyroid differs from the secretion elaborated by the normal gland. The beneficial effect of thyroidectomy upon hyperthyroidism does not prove that the thyroid is the cause of exophthalmic goiter; it may be only one element of a vicious circle. The onset of the disease is insidious. The diagnosis may be very easy or very difficult.

Medical treatment may be tried for six months. Iodine is used, but no drug is specific. Operation is indicated in all cases in which auricular fibrillation has developed, and is definitely required when signs of congestive heart failure are present.

PAUL STARR, M D

Billi, A. Rare Tumors of the Thyroid Region (Su tumori rari dell'apparato tiroideo) *Clin chir*, 1935, 11 863

The author reviews the general symptomatology of tumors of the thyroid and parathyroids and gives the commonly accepted classifications for these tumors. After discussing eighteen cases of parathyroid tumor which he collected from the literature he reports a very unusual case which he observed.

Billi's patient was a woman of fifty-three who, about thirty years ago, immediately after her first delivery, noticed a small swelling in the middle of the front of her neck. The neoplasm grew slowly and progressively, but did not cause symptoms. About a month before the patient's admission to the hospital another swelling developed on the right side of the neck above the primary tumor and rapidly grew from the size of a walnut to that of a hen's egg. This tumor caused neuralgic pain in the temporal region and attacks of dyspnea.

On examination, the tumor in the center of the neck was found to extend from one sternocleidomastoid to the other and from the jugular fossa to the hyoid. The other tumor was immediately above it, at the right angle of the jaw. The first tumor was the size of a hen's egg, nodular, painless, hard and elastic, and fixed to the underlying tissues. The second tumor was smooth, movable, and slightly painful on palpation. The skin over both neoplasms was normal. There was no exophthalmos or other ocular sign of Basedow's disease. The pulse and respiration were normal, and there was no tremor of the hands. On roentgen examination the thorax and mediastinum appeared to be normal. The larynx also was normal.

At operation, performed March 17, 1932, the larger tumor was found encapsulated and was easily removed. The smaller tumor was not definitely circumscribed and had invaded the surrounding tissues. The patient was discharged April 6 and told to return for roentgen treatment. She did not return until June 13, when she was admitted in an attack of suffocation from which she died.

Autopsy disclosed a large tumor of the front and right side of the neck. Only a small part of it extended upward into the neck. The greater part extended downward into the thorax, filling the whole upper part of the latter. The growth completely surrounded the trachea and the esophagus. The upper lobes of the lungs, the arch of the aorta, and the large vessel trunks were compressed and pushed downward. All of the mediastinal glands were enlarged. There were no signs of metastasis in the lungs, but a bone metastasis was found in the upper third of the right humerus.

Histological examination of the tumor showed a varied picture. Part of the tumor had the appearance of an alveolar epithelioma and other parts that of a sarcoma. The author presents photomicrographs of the different parts of the tumor and discusses the nature of the neoplasm. He does not believe that the growth was a parathyroid tumor. The presence of colloid in the alveoli does not argue against this diagnosis, but parathyroid tumors are generally homogeneous. Because of the extreme polymorphism of the growth and the lack of glycogen in it, Billi believes the neoplasm was a thyroid tumor. From a careful study of the cells he came to the conclusion that it was a sarcomatoid epithelioma of the thyroid gland.

AUDREY GOSS MORGAN, M D

Dinsmore, R. S. and Crile, G., Jr. Thyroid Problems and End-Results of Operations on the Thyroid Gland. *Surg Clin North Am*, 1935, 15 859

Simple endemic and simple adenomatous goiters are discussed. In these conditions pre-operative paralysis of the recurrent laryngeal nerve is very rare. In 8,000 cases its incidence was only 0.01 per cent. Of 1,033 goiters removed, malignant tumors were found in 24. Four of the latter were recurrent. Malignancy was suspected before operation in 9 cases. Hence the authors conclude that malignancy is present in 1 per cent of all patients subjected to thyroidectomy, and that, even if malignancy is not suspected, all goiters should be operated upon early. The operative mortality is 0.25 per cent. Operative procedures for malignant tumor of the thyroid are described.

In hyperthyroidism which is iodine fast, a rising pulse rate is an indication for more conservative surgery such as ligation. Eighty-five per cent of the deaths following thyroid operations have been those of patients over forty-five years of age. In severe hyperthyroidism there are 2 definite contra-indications to operation—vomiting and persistent delirium. In such cases pre-operative management may fail. Irradiation is then the only hope. In 10,111 consecutive operations for hyperthyroidism performed at the Cleveland Clinic the mortality was 1.29 per cent.

In 74 cases of hyperthyroidism in patients under fourteen years of age the symptoms were similar to those in older patients. In the aged, hyperkineticism is replaced by exhaustion, emotionalism by delirium, and tachycardia by cardiac fibrillation and decompensation. The risk is greater, but the chance of recovery without radical treatment is nil. Oxygen should be given in all crises.

In hyperthyroidism with regular cardiac rhythm and normal blood pressure the heart is not enlarged. Of 426 cases with auricular fibrillation, the heart returned to normal rhythm within three days after operation in 45 per cent and later in an additional 15 per cent. Under treatment with quinidine, the heart became regular in 90 per cent of the series.

Of 12,690 patients operated upon up to 1933 97 per cent were in good or fair condition one year or more after the operation and 86 per cent had resumed their normal occupation. In 1.5 per cent, hyperthyroidism recurred within two years after the operation.

PAUL STARR, M.D.

Berlin, D. B.: Total Thyroidectomy for Intractable Heart Diseases: A Summary of Two and One-Half Years' Surgical Experience. *J. Am. M. Ass.* 1935 105 2104.

The velocity of blood flow is directly proportional to the metabolic rate. Total thyroidectomy has been performed more than 90 times in the past two and one-half years, with artificial myxedema in every case. The selection of patients with the aid of the internist is fundamentally important. Suitable patients are those with relatively non-progressive heart disease, who suffer from recurrent attacks of failure when up and around. Rapidly progressive heart disease, severe renal deficiency and acute pulmonary and active rheumatic infection are contra-indications. In the unusual group of patients progressing in the number of attacks or coronary thrombosis within three months is a contra-indication. In

either case a basal metabolic rate below -15 per cent contra-indicates operation.

Local anesthesia is used. Sixty-five per cent of recurrent laryngeal nerves occurred in the spaces between the trachea and esophagus. 15 per cent passed through the adherent zone in close apposition to the gland and 10 per cent partially penetrated the gland substance. In 100 total thyroidectomies, 3 permanent and 9 temporary unilateral nerve injuries occurred. A pyramidal lobe occurred in 33 per cent of 60 cases. Severe parathyroid tetany has not been a problem.

Postoperative medical management includes thyroid feeding to hold the basal metabolic rate at -15 per cent but prevent signs of myxedema. Of 96 patients with angina pectoris, from one to two and one-half years after operation 50 per cent showed marked improvement, 17 moderate improvement, 14 per cent slight improvement, and 19 per cent no improvement. Of 31 patients with congestive heart failure at the same postoperative period, 38 per cent showed marked, 31 per cent moderate, 22 per cent slight, and 9 per cent no improvement.

In the last 68 cases operated upon there was no operative mortality.

PAUL STARR, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS, CRANIAL NERVES

Planeth, W. Brain and Spinal Cord Injuries Following Lumbar Injections (Hirn und Rückenmarksschädigungen nach Lumbalinjektionen) 1934 Muenster W., Dissertation

The author reports in detail two cases of brain and spinal-cord injuries and critically reviews the literature on such injuries to date.

In the first case severe paralysis of the lower extremities, incontinence, and impotence followed the inadvertent intralumbal injection of 10 c cm of a 40 per cent antipyrine solution. The incontinence and impotence still persists after two years. Walking is very difficult and considerable muscular atrophy has occurred in the lower limbs, especially the distal parts.

With few exceptions, which are mentioned, such as deteriorated solutions, overdosage (in neuropathic patients the usual solutions act similarly to overdosage), the addition of impure adrenalin or the assumed toxic effect of combined novocain and scopolamin, all writers on the subject consider that correct dosage, proper solution, and perfect technique (no unnecessary loss of cerebrospinal fluid and no lowering of the cervical portion of the vertebral column) are the most important factors. Nevertheless the mortality is 0.023 per cent and in from 12 to 25 per cent of the cases there is a slight tendency toward vomiting with dizziness and headache. As a rule these symptoms soon disappear completely. They persist for a longer time in only 2 per cent of cases. Even occasional paralyses of the eye muscles, usually of the abducens nerve, disappear completely in a few weeks or months. Very rarely, a decubitus ulcer with sharp edges develops as the result of trophic disturbances. The headaches and paralyses occur most frequently in persons who are psychically unstable or in whom the central nervous system has been more or less severely injured by lues, tabes, multiple sclerosis, tumors, Basedow's disease, acute suppuration, or intoxication by alcohol or nicotine. In the cases of luetic and neuropathic persons it is best not to give lumbar injections.

The author's second case was that of an obese patient with coronary sclerosis and neurasthenia from injury.

In conclusion Planeth says that early symptoms are due to changes in the cord caused directly by the substance injected. Clinically, these are paralyses, paraplegias, incontinence or weakness, pareses, and paresthesias. The permanent injuries are usually atrophy of the posterior roots and columns, cortical degeneration, ascending degeneration of the columns of Goll, and degeneration of the ganglion

cells of the gray matter, especially of the large polygonal anterior horn cells. The late symptoms in the region of the head, which are manifested especially by eye muscle paralysis and headaches, as well as those in the lower part of the body are probably due to slowly developing chronic meningitis.
(EGGERT) LEO A. JUNKER, M.D.

Violato, A. A Retained Projectile in the Occipital Lobe. The Migration of Projectiles within the Brain (Proiettile ritenuto nel lobo occipitale. Sulla migrazione dei proiettili nella massa encefalica) *Arch. ital. di chir.*, 1935, 40, 673.

Even before the days of the roentgen ray it was well known that a projectile might remain in the brain without producing definite alterations or symptoms. Roentgen examination has made possible the exact localization of such bodies. When one considers the vulnerability of the brain and the usual fatal nature of gunshot wounds it is not surprising that the number of such observations is small. It is of interest that such observations are made more often in civil wounds than in war wounds. It is possible that revolver bullets do not cause the severe degree of cerebral concussion that results from the penetration of rifle bullets, pieces of hand grenade, and shrapnel. Previous to the world war fewer than 100 cases were reported. After reviewing these cases briefly Violato reports the following case.

The patient was a boy eleven years old who was shot in the head by a bullet from a 6.35 caliber revolver on August 10, 1933. A few hours after the accident he was brought to the hospital in coma and apparently moribund. The wound of entrance was in the left supra-orbital region. A roentgenogram showed the bullet in a region corresponding to the temporal lobe. It had therefore traversed a good deal of the brain substance. As death seemed inevitable the family took the child home.

Three months later the boy was in good general condition. He had returned to work on the farm and complained only of slight heaviness in the head which was associated especially with marked changes in the weather, and at times of a mild headache on the left side. The ocular movements, the reaction of the pupils, and vision were normal. The reflexes of the upper extremities showed slight weakness, but the others were normal. Roentgen examination showed the projectile in a position entirely different from that in which it was found immediately after the injury. The bullet was located more posteriorly and inferiorly in the skull and was in contact with the squamous portion of the occipital bone. According to measurements, it had moved about 3 cm.

In August, 1934, one year after the injury, there was no change in the clinical symptoms. A roent-

genogram showed that the bullet still occupied the position in which it was found at the preceding examination but had rotated so that its broad side instead of its point was in contact with the occipital bone.

Eighteen months after the accident there was no change from the condition in 1934 and removal of the projectile then so near the surface, was advised.

This case is of interest because the projectile had traversed the brain anteroposteriorly without causing a functional lesion and the bullet changed position spontaneously.

The author discusses the relationship between the theoretical path of the projectile and the portions of the brain involved. He believes that the secondary movement of the bullet depended principally on the direction of application of the force of gravity which was sufficient to pull it through the easily penetrable soft brain tissue, and that the eventual fixation of the bullet on the squamous portion of the occipital bone was probably related to its inclusion by meningeal adhesions. He suggests that if this theory is correct, it might be possible to influence the direction of the movements of intracranial heavy foreign bodies by maintaining the patient in certain positions.

A. LOUIS ROSE, M.D.

Varia, H. G., Kennelham, J. W. and Adson, A. W.: Tumors of the Frontal Lobe: An Anatomical and Pathological Study. *Arch. Neurol. & Psychiat.* 935, 34, 609.

This study is the result of an analysis of the anatomical site of and the histopathological findings in a series of 314 tumors of the frontal lobes.

The series includes all histologically verified neoplasms of the frontal lobes encountered at the Mayo Clinic up to January 1, 1933. No metastatic lesions were included and no tumors were certified on the basis of the presence of cystic fluid alone.

Included in the study were all neoplasms that were wholly or partially situated in or pressing on the frontal lobes, as they are ordinarily defined anatomically or on the corpus callosum.

The authors have subdivided the frontal lobe into areas corresponding to those given by Tilney and Riley who based their division on the work of Campbell. These areas are, from front to back the prefrontal frontal, premotor, (intermediate precentral) and motor (precentral).

In many cases of infiltrating neoplasm, although the surgeon is able to obtain a specimen for biopsy and thus verify the tumor pathologically, exploration does not reveal the entire extent of the tumor. Accordingly it is not justifiable to place the lesion in any but the broad and general anatomical divisions. However in 153 of the cases reviewed the authors had dependable information from exploration or autopsy as to the anatomical extent of the tumor. In all cases this information was the result of gross observation by inspection and palpation, or both. The fact that the extent of the tumor in cases of infiltrating gliomas has not been checked micro-

scopically is, of course, a source of error as these tumors often infiltrate the brain beyond the areas of gross involvement. On the other hand, these same infiltrating gliomas, especially at their periphery, may have within them nerve fibers and even ganglion cells which are still anatomically and probably also physiologically intact, and, in part at least, they may still be carrying out their ordinary functions. Clinically there is evidence to confirm this, as many cases of infiltrating gliomas do not present symptoms commensurate with the gross or microscopic extent of the neoplasm. Therefore, from the clinical standpoint, the 2 factors just mentioned may to some extent offset each other.

In 112 (36 per cent) of the cases reviewed the tumor was on the right side in 117 (40 per cent) on the left side and in 75 (24 per cent) bilateral.

One hundred and twenty-three (39 per cent) of the tumors were confined entirely to the frontal lobes, 151 (48 per cent) originated in the frontal lobes but involved other lobes of the cerebrum, the corpus callosum, or the basal ganglia, and 38 (12 per cent) while definitely involving some portion of the frontal lobe had their origin in other portions of the brain. Two tumors confined to the corpus callosum are also included. In 1 case there were 2 separate and distinct tumors, one a gangliocytoma in the prefrontal area, the other a spongioblastoma multiforme in the frontoparietal region of the same side. This case is therefore counted twice.

The adjacent structures involved by the 151 tumors which originated in the frontal lobes were as follows: parietal lobe 68 cases; parietal and temporal lobes, 13 cases; parietal lobe and basal ganglia, 6 cases; parietal lobe and corpus callosum, 3 cases; insula, 3 cases; insula and temporal lobe, 7 cases; insula and parietal lobe, 1 case; insula and basal ganglia, 6 cases; corpus callosum, 5 cases; corpus callosum and basal ganglia, 13 cases; basal ganglia, 7 cases; temporal lobe 16 cases and hypothalamus, 3 cases.

The origin of the 38 tumors which involved the frontal lobe was as follows: parietal lobe, 9 cases; insula 3 cases; temporal lobe and insula, 3 cases; corpus callosum, 13 cases; septum pellucidum, 1 case; basal ganglia 5 cases and hypothalamus, 1 case. In this group the most frequent site of origin was the corpus callosum and the next most frequent the parietal lobe.

When anatomically verified tumors of the frontal lobes were tabulated it was found that there were no lesions involving the premotor area alone and that the 3 largest groups occurred in the frontal prefrontal areas (50 cases) and in the entire frontal, and prefrontal (frontal, premotor-motor areas) (50 cases).

Among the 53 tumors the gross anatomical extent of which was known exactly was a subgroup of 49 tumors which were confined to the frontal lobe and did not grossly invade other parts of the cerebrum. The areas involved by these 49 tumors were as follows: prefrontal, 7 cases; frontal, 7 cases; premotor no cases; motor no cases; frontal prefrontal,

19 cases, premotor-frontal, 3 cases, premotor-motor, 3 cases, prefrontal-frontal-premotor, 6 cases, frontal-premotor-motor, 1 case, and prefrontal-frontal and premotor-motor, 3 cases

Microscopic sections from each of the 314 tumors in the series were examined. The 194 gliomas in the series were classified as follows: medulloblastoma, 1, oligodendroblastoma, 19, spongioblastoma multiforme, 113, polar spongioblastoma, 5, astroblastoma, 6, ependymoma, 5, astrocytoma, 28, oligodendroglioma, 9, gangliocytoma, 5, mixed type, 1, and unclassified, 2. The remaining tumors were classified as endothelioma in 109 cases, hemangioblastoma in 6, sarcoma in 2, lymphosarcoma in 1, epidermoid cyst in 1, and chondroma in 1.

The preponderance of spongioblastoma multiforme (now called "glioblastoma multiforme" by Cushing) in the series presented was probably due in part to the fact that the authors based their criteria for classification of gliomas on the principle that the malignancy of a tumor should be estimated from the appearance of the most malignant portions of that tumor.

One tumor in the series was classified as an atypical medulloblastoma. It is of interest that 5 tumors were classified as ependymoma. One of these was very well differentiated and was a typical papilloma of the choroid plexus. The 4 others were more primitive. Three of them contained typical oligodendroblasts and numerous mitotic figures. Since the present tendency is toward simplification in the classification of gliomas, the authors have grouped all these tumors as ependymomas. One glioma they were able to classify only as a mixed tumor. Two others were unclassified because the tissue obtained at biopsy was insufficient.

Six (2 per cent) of the tumors of the series were classified as hemangioblastomas. There were 2 true sarcomas of the brain. One tumor classified as a lymphosarcoma may or may not have been primary in the brain. The case of epidermoid cyst has been previously reported by Learmonth and Kernohan, and the case of chondroma of the falx cerebri by Verbrugghen and Learmonth.

Voris, H. C., and Adson, A. W. Tumors of the Corpus Callosum. A Pathological and Clinical Study. *Arch. Neurol. & Psychiat.*, 1935, 34, 965.

The diagnosis of tumor of the corpus callosum has not often been made during life. Since the advent of ventriculography, it has occasionally been made with the aid of this procedure. Even at operation, these tumors, because of this situation, are not often verified.

According to the thirty-eight cases reviewed by the authors, the outstanding clinical features are early signs of increased intracranial pressure associated with marked mental changes. Motor manifestations, including convulsions, unilateral or bilateral paralysis, reflex disturbances, and apraxia, are often present. So-called cerebellar signs are frequently seen and may at times cause confusion in

the diagnosis, but when they are associated with convulsions or with signs of pyramidal involvement they should not lead to error. Perhaps the most difficult problem is to distinguish tumors of the corpus callosum from lesions of the frontal lobe. Lévy-Valensi states that the anterior part of the corpus callosum is most frequently involved by tumor. In his review he has presented the figures for the situation of the tumor in seventy-four cases collected from the literature. The entire corpus callosum was involved in nineteen cases, the genu in twenty-eight, the splenium in nineteen, and the body alone in eight. In none of the reports that Voris and Adson have reviewed has the involvement of adjacent structures been adequately described.

In the cases presented by the authors the genu, genu and body, or entire corpus callosum was involved and in all there was some involvement of the frontal lobes. In a few there was also involvement of the parietal lobe. In reviewing a large number of cases of supratentorial tumor in connection with this study and studies previously reported, the authors found only two cases in which the tumor was grossly confined to the corpus callosum. This factor of subcortical involvement of the frontal lobes probably accounts in part for the similarity of the findings in the two groups, but the authors are convinced that the chief difficulties in the diagnosis of these tumors will usually be in distinguishing them from frontal, and occasionally from cerebellar, lesions. It is probable that ventriculography will often be necessary to establish the diagnosis definitely and should perhaps be used more often as tumors of this particular group are not amenable to surgery except from the standpoint of palliative decompression.

Hoff, H., and Schoenbauer, L. Postoperative Cerebral Edema (Ueber das postoperative Hirnoedem). *Deutsche med. Wchnschr.*, 1935, 1, 786.

The most important cause of cerebral edema in cases of brain tumor is roentgen irradiation. Of 700 cases of brain tumor treated in the past year, roentgen irradiation was given in 110. In 95 cases no effect was apparent, in 10, the patient's condition became definitely worse, and in 3, death occurred immediately after the irradiation. Improvement resulted in only 2, and in these 2 operations became necessary after a year. In cases of papilledema in which roentgen irradiation is successful the condition is not tumor but encephalitis. Wiesen has called attention to this fact.

The region supplied by the middle cerebral artery shows the greatest tendency toward edema. After roentgen irradiation there is a change in the brain tissues which may be grouped with the serous inflammations. Of 107 surgically treated patients who received pre-operative irradiation, 35 presented definite symptoms of cerebral edema after operation. When pre-operative irradiation is given the results of operation are poorer and the favorable time for operation is lost. The shorter the interval between

the irradiation and the operation the less the chance of cure. For these reasons roentgen irradiation of the closed skull in cases of brain tumor is to be avoided.

The authors gave postoperative irradiation in 150 cases of brain tumor. In only 4 was there evidence of improvement, and in these the tumor was a medulloblastoma which is well known to be sensitive to irradiation. In many of the other cases the irradiation was followed by aggravation of the condition, hemorrhages, vascular injuries in the brain, edema, or sudden death. In the absence of a histological diagnosis, the authors avoid postoperative roentgen irradiation as its results depend upon the type of the tumor. They now disapprove also of radium treatment as further observation of cases in which the immediate results were favorable has shown that the effect was not permanent. In cases of hypophyseal tumor temporary improvement was noted, but the course of the condition was not influenced. Of 11 cases in which irradiation was given, operation became necessary in 8.

As brain edema is an exudative inflammation, vasoconstricting measures, such as the administration of large doses of pyramidal suggested by Forth, should be tried. In hopeless cases the authors saw improvement after the daily administration of from 3 to 5 gr. of pyramidal by mouth and by rectum. In encephalitis and poliomyelitis, pyramidal has given no results even when administered in large doses whereas in hemorrhagic arachnoiditis its effect is surprising.

(Krieg) JACOB E. KRIEG, M.D.

SYMPATHETIC NERVES

Beattie, J.: Central Control of the Sympathetic Nervous System. *Brit J Surg* 1935 3 444

Experimental work during the last fifteen years has shown that stimulation of the hypothalamus causes phenomena similar to those elicited by stimulation of sympathetic and parasympathetic nerves. There is evidence that three groups of efferent fibers arise from hypothalamic nuclei, one group arising in the supra-optic area and apparently innervating the posterior and intermediate lobes of the pituitary gland; a second group arising from some or all of the same nuclei and passing into the brain stem; and the third group arising from the posterior hypothalamus. The efferent fibers to these groups have not yet been determined.

It has been demonstrated that channels or vessels pass from the anterior lobe of the pituitary gland through the stalk of the infundibulum into the region of the tuber cinereum. The weight of evidence suggests that some hypothalamic cells, probably those close to the infundibulum, are influenced by chemical substances elaborated in the pituitary gland.

An analysis of all experimental evidence confirms the view that the more posterior nuclei are related to the true sympathetic nervous system, because on stimulation of this area the characteristic phenomena

of sympathetic excitation—cardiac acceleration, vasoconstriction, a rise in the blood pressure, adrenal secretion, and pupillo-dilatation—occur. These effects are not obtained on stimulation after section of the hypothalamus at the level of the aspect of Sylvius and are abolished or lessened by doses of the barbiturates or ergotamine.

Riggs' study of diabetes mellitus has revealed that minute lesions of the nuclei close to the optic chiasma, ligation of the pituitary stalk or its destruction by tumor or lesions in the tuber cinereum itself may give rise to the disease. It is probable then that the hypothalamo-pituitary nerve connections are essential for the production of the antidiuretic hormone of the pituitary gland in normal amounts. The hormone finds its way into the blood stream and produces its effect on the kidney directly.

Various workers have shown that stimulation of the anterior regions of the hypothalamus causes effects similar to those produced by stimulation of the vagus or pelvic nerve.

One of the most important complications following operative procedures in or near the third ventricle is hyperthermia. Preservation of the posterior hypothalamus, the mammillary bodies, and the tuber cinereum in an otherwise decerebrated animal prevents disturbances of the temperature control. While the temperature fall may be due to increased heat loss, diminished heat production, or both factors acting together, the balance of evidence seems to indicate that it is caused by a decrease in heat production as the continuous release of small quantities of adrenalin (which release seems to be under hypothalamic control) is apparently responsible for the production of the heat necessary to maintain body temperature.

As clinical hyperthermia is probably due to an increase of the normal heat production and as the centers which may be overactive are those which are very sensitive to the depressing effects of the barbiturates, it may be worth while to treat cases of hyperthermia with barbiturates even to the point of deep anesthesia for short periods.

The evidence in favor of a central controlling mechanism for the autonomic nervous system indicates that the hypothalamus must be regarded as the necessary controlling factor.

EDWARD S. FLATT, M.D.

Telford, K. D.: The Technique of Sympathectomy. *Brit J Surg* 1935 3 448

The author formerly favored the posterior approach to the cervicothoracic ganglion, but now prefers the anterior route. He states that while the results of sympathectomy are on the whole good, relapse or partial failure is still too frequent. This is true especially of operations for desiccation of the arms. The methods used today are too gross and mutilating, often resulting in undesirable effects such as Horner's syndrome.

An incomplete technique is sometimes the explanation for failure, but the observations in many cases

indicate the presence of other factors. For instance, results in the legs are consistently better and more complete than results in the arms perhaps because the lumbar operation is probably wholly preganglionic whereas cervicothoracic ganglionectomy is postganglionic for the arm. The author has altered his technique to obtain a section which is to a large extent preganglionic by dividing the white rami of the second and third thoracic nerves and crushing and dividing the cord itself below the third thoracic ganglion. No attack is made on the stellate ganglion itself. While the results cannot be appraised before two years have elapsed, the immediate result is excellent and Horner's syndrome is not produced.

The variable anatomy of the autonomic nervous system explains some of the failures and alternate paths to the paths now recognized are possible. Regeneration has been considered another cause of failure since it is known to occur in animals, but in one of the author's cases a second operation showed no attempt at regeneration of the divided thoracic sympathetic cord. Sympathetic cell-stations may occur in the peripheral circulation having been demonstrated on the walls of cerebral arteries. The presence of "spinal parasympathetic" fibers is also a possibility although the evidence obtained by Kure has not been confirmed by others.

After sympathectomy the limb becomes brightly injected and warm, but after four or five days in the case of the arm and from eight to ten days in the case of the leg the color and heat begin to lessen. White claims that this is the period after which the denervated limb becomes hypersensitive to adrenalin. If this is true, treatment of Raynaud's disease will be more difficult than has been believed.

The essential automatism of plain muscle may be more important than has heretofore been thought. It is possible that too much has been expected from section of the nerve supply. Late operation after the development of secondary fibrotic changes is the cause of failure in certain cases such as advanced cases of thrombo-angiitis obliterans, long-standing megacolon, and achalasia of the esophagus.

In some conditions sympathectomy will become one of the established procedures of surgery, but it may be that in the future the field will be more restricted than at present. EDWARD S. PLATT, M.D.

Ross, J. P. • The Results of Sympathectomy. An Analysis of the Cases Reported by Fellows of the Association of Surgeons. *Br. J. Surg.*, 1935, 23, 433

Fewer than 250 cases were reported for this analysis, and in nearly half of them the operation was performed less than a year previously. Only about a quarter of the cases have been followed up long enough for determination of the late results of the sympathectomy.

DISORDERS OF THE CIRCULATION

Sympathetic ganglionectomy for Raynaud's disease. The cases of Raynaud's disease were divided into

3 groups according to their severity. A successful result, meaning a great diminution in the severity of attacks, was obtained in all the mild cases and in a majority of the moderately severe cases accompanied by ulceration. Of 11 cases of the severe form with scleroderma sympathectomy was a complete failure in 8. The great majority of the patients were women. Lumbar ganglionectomy produced more favorable results than cervicothoracic ganglionectomy.

Sympathetic ganglionectomy for obliterative arteritis. Cases of thrombo-angiitis obliterans were divided according to their symptoms into those in which intermittent claudication was the only prominent symptom, those in which pain was present at rest as well as after exercise, and those complicated by gangrene of the toes. Intermittent claudication is difficult to relieve by operation. However, rest-pain and early gangrene often respond well, considering that the disease tends to be progressive and that high amputation is frequently the only alternative treatment. In the cases reviewed only 3 operations were performed for involvement of the upper extremities. Cervicothoracic ganglionectomy was successful in 2 but a complete failure in the third. Of 66 patients 66 were men.

In 1 case of syphilitic endarteritis lumbar ganglionectomy was of no value. Of 3 cases of senile arteriosclerosis rest-pain was relieved in 2. In the 2 others amputation became necessary. It was done below the knee and the stumps healed well.

Sympathetic ganglionectomy for the circulatory disorders following infantile paralysis. In 1 case operation was performed without success for ulceration of the hand following infantile paralysis. Of 26 cases of impaired circulation in the legs which were treated by lumbar ganglionectomy, a successful result was obtained in 21 and improvement in 2. As the incidence of infantile paralysis is the same in males and females it is of interest that nearly 4 times as many girls as boys suffered from coldness and blueness of the legs as a late complication and that the circulatory disturbance was usually less severe in the males.

Lumbar ganglionectomy for erythrocyanosis frigida. This condition affects the legs of young women. It is characterized by patches of mottled red and blue discoloration. In some cases there is ulceration. In all of the uncomplicated cases a successful result was obtained, but 2 of the patients with ulcers developed a recurrence. The thickening of the tissues commonly referred to as "edema" was diminished, but the limb seldom recovered its normal shape.

DISORDERS OF THE COLON

Sympathectomy for idiopathic dilatation of the colon. There were 20 cases of idiopathic dilatation of the colon in children. Seventeen of the children were boys. The sex incidence was in contrast to that of intestinal stasis in adults. A successful result was obtained in 21 of the 20 cases and definite improvement in 7. The only failure was in a case complicated by severe general debility. In this case the

patient died three months after the operation without having at any time shown improvement.

Sympathectomy for acquired intestinal stasis. There were 15 cases of acquired intestinal stasis. Thirteen of the patients were females. The indications for operation were less clearly defined than in children, and the results were less satisfactory. Of the 15 operations, 7 were failures. In the cases showing improvement the results were less satisfactory than in the corresponding Hirschsprung group and there was a tendency toward recurrence of severe constipation. Dilatation of the bowel was a prominent feature in the cases responding well to sympathectomy in these groups. When stasis was present without dilatation, sympathectomy was less successful. Cases with over-distention of the bladder showed improvement in bladder function.

SYMPATRECTOMY FOR PAIN

Renal pain. Periaxillary neurectomy of the renal artery was followed by a successful result in 13 of 16 cases. Relief was obtained after an initial period of forty-eight hours during which there was an increase of pain with diminished secretion of urine.

Causalgia. There were 9 cases in which the characteristic pain persisted in spite of repeated attempts at relief by local operations. Of 8 cases of involvement of the hand, relief was obtained in 6 and improvement in 1. In the case of failure in which the arm was amputated for persistent pain, the median nerve was found adherent to the original scar. The man with leg involvement had suffered from an ulcerated hyperesthetic amputation stump for twelve years and had never been able to wear an artificial limb. Pain ceased immediately after lumbar ganglionectomy and in a few weeks the patient was able to walk with an artificial limb. The cases most suitable for sympathectomy seemed to be those in which the pain was accompanied by vasomotor phenomena, oversensitivity to temperature changes, and excessive secretion of sweat and any gross local cause of nerve irritation had been removed.

MISCELLANEOUS CONDITIONS

Chronic arthritis. Sympathetic ganglionectomy benefited 2 of 3 patients with arm involvement and 1 of 2 patients with leg involvement.

Hyperhidrosis. Hyperhidrosis was successfully treated in 3 patients, 1 with excessive sweating of the hands and 1 with sweating of the feet sufficient to prevent his working.

Reitnis pigmentosa. Seven cases of reitnis pigmentosa were treated by superior cervical ganglionectomy. Slight improvement occurred in 1 and the progress of the disease seemed to be arrested in another. In the 5 others no improvement resulted.

Sporadic dysmenorrhea. Presacral neurectomy was successful in 1 case but failed in a case of congestive dysmenorrhea.

Sympathetic ganglionectomy failed to benefit a children suffering from spastic diplegia and 1 patient suffering from postencephalitic palsy.

Histologically sections of the tissue excised were normal in most cases. Since some abnormalities were found even when there was no reason to suppose that the sympathetic system was at fault, it is probable that the changes were variations in healthy ganglionic tissue.

Recovery of function in denervated organs. It was found that limbs tended to cool in the course of a few months as the effect of the extreme vasodilation passed off. Horner's syndrome became less marked in the course of time, but never disappeared. Recovery of sweating seldom occurred, and when it did there was doubt about the completeness of the sympathectomy. Recovery of vasoconstriction in the absence of sweating indicates the development of independent activity in the arterial muscular coat, favoring the view that the sympathetic system is a regulator of function and not a prime mover.

Disabilities following sympathectomy. After cervicothoracic ganglionectomy disabilities were usually temporary though a few patients complained of permanent roughness of the hands interfering with delicate work. A few patients complained of weakness of the eyes and a few of stiffness of the nose for a few weeks. Excessive sweating of the trunk was troublesome to some patients, more often when the lumbar trunk also had been excised. After periaxillary neurectomy and in some cases bilateral lumbar ganglionectomy male patients became sterile though they remained potent.

PERIARTERIAL NEURECTOMY

There is no question of the practical value of periaxillary sympathectomy in the treatment of radiocutaneous ulcers and in alleviating the pain and limiting the extent of gangrene of the extremities. In both the acute and the diabetic types of gangrene the left side was more often affected.

In conclusion the author says that except when sympathectomy is performed for the relief of pain it is not correct to say that any of the operations can effect a cure. Excisions of sympathetic nerves and ganglia were devised, not to extirpate diseased structures, but to rectify disorders of function in organs the activity of which is controlled by sympathetic impulses. The results here recorded are of value insofar as they indicate the particular conditions in which this object may be achieved.

EDWARD S. PLATT, M.D.

Meillère J. and Bréhaud, J.: Résection de l'aplanche nerve. Physiologique Basile. Indications and Results. Operative Techniques (La résection des nerfs aplancheux. Bases physiologiques. Indications et résultats. Techniques opératoires). J. de chir. 935, 45, 737.

The author reviews what is known of the function of the aplanche nerve and discusses the indications for and the results of their resection on the basis of the literature. Excision and denervation of the suprarenal glands are included because they are in some degree equivalent operations.

On the basis of the theory that arterial hypertension is caused by hyperfunction or dysfunction of the suprarenal glands, suprarenalectomy was first attempted by Vaquez. Resection of the splanchnics was performed for the same purpose by Pende in 1925. It was hoped that the cutting of the splanchnics would not only suppress the secretion of adrenalin but result in relaxation of the abdominal vessels with consequent lowering of the systemic blood pressure. Ten such operations have been performed (Pieri, Donati and Craig, and Brown). The best results were obtained in cases of paroxysmal hypertension. The blood pressure was stabilized but not greatly lowered.

If one accepts the theory that Buerger's disease is a manifestation of vascular spasm dependent upon suprarenal function, it is logical to attack the spasm by suprarenalectomy or resection of the splanchnics. Durante has reported two cases in which the results were favorable.

In pancreatectomized dogs an increased sugar tolerance is known to follow section of the splanchnic nerves. The operation has therefore been tried in a number of clinical cases of diabetes mellitus. The results have been variously judged.

Denervation of the suprarenals has been performed in thirty-five cases of peptic ulcer. In 95 per cent the pylorospasm and hyperacidity were relieved. By this operation or suprarenalectomy Crile obtained a cure in 95 per cent of cases of neurocirculatory asthenia.

The techniques of resecting the splanchnics are described in detail with the aid of ten illustrations.

Two routes are possible, the posterior mediastinal and the lumbosubdiaphragmatic.

The authors come to the conclusion that the surgery of the splanchnic nerves is a "new surgery with an uncertain destiny."

ALBERT F. DE GROAT, M.D.

MISCELLANEOUS

Pollock, L. J., and Davis, L. Visceral and Referred Pain. *Arch. Neurol. & Psychiat.*, 1935, 34, 1041.

The authors studied the pain pathways from the peritoneal diaphragm to consciousness in eighty-two animals by noting the response of the animals to faradic stimulation of the diaphragm when various parts of the nervous system were severed. They conclude that pain travels from the peritoneal diaphragm over the phrenic nerve. Entering the cord by the way of the posterior roots, it descends to the level of the eighth cervical and first, second, and third thoracic segments. A connection is then made with cells in the intermediolateral column, and sympathetic efferent impulses travel over the preganglionic fibers through the anterior roots to the cervical sympathetic ganglia. From here, postganglionic fibers travel to the skin, blood vessels, meninges, and other structures where, through the mediation of some vasomotor (?) or hormonal (?) process, the sensory endings of the cerebrospinal system are stimulated and a sensory impulse travels over the ordinary cerebrospinal system, enters the spinal cord through the posterior roots, and ascends to consciousness.

DAVID J. IMPASTATO, M.D.

SURGERY OF THE THORAX

CHEST WALL AND BREAST

Kraus, E. J.: The Pathogenesis of Galactorrhea; with Remarks on the Hormonal Processes in Physiological Lactation (*Zur Pathogenese der Galaktorrhoe nebst Bemerkungen ueber die hormonellen Vorgaenge bei der physiologischen Lactation*) *Arch f Gynec* 1935, 159, 130

Preparation of the mammary gland for lactation associated with proliferative changes during pregnancy occurs most probably under the influence of ovarian hormones

The lactation hormone under the influence of which the secretion of milk in the breast of the postpartal woman occurs may be a product of the "pregnancy cells" which are developed from the "mam cells" under the action of the placenta and the hormones contained therein. As long as the "pregnancy cells" are in the developmental stage under the action of the placenta they have no influence upon the internal secretion of the mammary gland, which appears only after the placenta is cast off and the growth stimulus to the "pregnancy cells" is thereby terminated. The involution of the "pregnancy cells" which begins after birth may lead to the resecretion of large quantities of the lactation hormone by means of which physiological stimulus the production of milk is brought about. Afterward this activity is probably maintained by the act of nursing.

Under pathological conditions, lactation can occur from the influence of hyperpituitarism directed toward milk secretion. Under such conditions a reduced or entirely missing function of the sex glands also plays a favorable rôle. Under pathological conditions, the ability to produce the lactation hormone may be due not only to the chromophobic cells of the hypophysis, but also as shown by the occurrence of galactorrhea in acromegalia, to the eosinophilic cells.

The author reports two cases of galactorrhea in nulliparous women. He attributes the abnormal milk secretion in these cases to a hyperpituitarism due to glandular hyperplasia of the anterior lobe of the hypophysis with an increase in the eosinophilic cells and hypertrophic growth of the principal cells, not unlike the "pregnancy cells" in the absence of ovarian function.

The author traces the hyperplasia of the anterior lobe of the hypophysis to changes in the hypophysis due to chronic pressure. In one case this pressure was due to an endocholema at the base of the brain in the region of the tuberculum sellae and in the other to a tumor of the infundibulum situated in the third ventricle.

(Amstelrova) J. DANIEL WILLIAMS, M.D.

Tirelli, S.: Gelatinous Cancer of the Breast (*Del cancro gelatinoso del seno mammella*) *Palchia Roma*, 1935, 41 ser. chir. 6, 5

Tirelli reports a case of gelatinous tumor of the breast after presenting a clinical and pathological review of such neoplasms. As his patient refused radical operation, only the tumor was removed. Two years later a recurrence in the scar was excised and the operation followed by roentgen therapy. Both tumors were encapsulated and no metastases were seen in the sections. As the limited excisions and the postoperative roentgen irradiation constituted an involuntary experiment in the treatment of this type of neoplasm, the patient's further course will be watched with interest.

The article is illustrated and is followed by a bibliography. M. E. HENST, M.D.

Gruber, R. C., and Robinson, G. H.: The Pathogenesis of Fibro-Adenocarcinoma of the Breast. *Arch Surg* 1935, 3, 677

The authors studied adenofibromas of the encapsulated variety in rats and two patients.

Spontaneous adenomas from the mammary glands of rats could be transplanted into succeeding generations and their changes observed. Like the normal breast, which undergoes changes during the menstrual cycle, the adenoma was observed to change. Lactation changes occurred in the tumors even when they were transplanted into a subcutaneous site distant from all breast tissue. All of these changes were observed by the authors also in adenomas of the human breast.

After three years of successive transplantations a pure growth of fibrous tissue was obtained in which all ducts and acini had been completely replaced by connective tissue. Thus a pure fibroma was obtained from the original adenofibroma. One such tumor which had been transplanted for ten generations began to grow very rapidly and caused an ulceration of the overlying skin. It could be sheeled out easily, was firm to the touch, and had the fleshy appearance characteristic of sarcoma. Microscopically it showed the morphological characteristics of fibrosarcoma. However, it was not invasive, being definitely circumscribed.

In women the authors found two tumors the microscopic sections of which were indistinguishable from those of the rat tumors.

This evidence is presented to prove the occurrence of adenofibrosarcoma of the breast as a clinical and pathological entity. The development of this tumor begins with a benign adenoma and progresses to a morphological sarcoma in the breast of the experimental animal and the human breast.

J. DANIEL WILLIAMS, M.D.

TRACHEA, LUNGS, AND PLEURA

Coryllos, P. N. *The Surgery of Pulmonary Tuberculosis—Its Indications, Techniques, and Results*. *Quarterly Bull. Sea View Hosp.*, New York, 1935, 1: 89

The principal surgical methods besides pneumothorax which are used to effect collapse of tuberculous portions of the lung are intrapleural pneumolysis, closed (Jacobaeus) or open, extrapleural apicolysis with packing or plombe, interruption of the phrenic nerve either temporarily (crushing) or permanently (avulsion), and thoracoplasty, partial or complete. Other procedures such as scalenotomy, thoracoplasty with packing (Casper), multiple intercostal neurectomy (Alexander), and pneumocavernalysis (Neuhof) are of secondary importance, if any. In the first rank of present-day collapse methods are pneumothorax and thoracoplasty. Other methods are to be used only to supplement them and never as substitutes for them. The best procedure is not the least dangerous procedure but the procedure which will be most effective in the given case. The treatment of pulmonary tuberculosis must be medicosurgical.

In the acute forms of pulmonary tuberculosis the patient should be kept at rest in bed until the diagnosis between the benign exudative and caseous pneumonic form is made. In the first condition no collapse treatment is necessary. In the second, early collapse treatment should be instituted following the appearance of cavities.

In the chronic productive form of pulmonary tuberculosis in which no sizable cavities are present there is no indication for surgical treatment.

In the choice of cases for surgical treatment the patients should be subjected to a careful general examination and especially an examination of the genito-urinary system. Electrocardiograms and injections of dye for the determination of amyloid degeneration should be made. Extrapulmonary tuberculosis and especially Pott's disease should be looked for. Intestinal and laryngeal tuberculosis, even when moderately advanced, and amyloid degeneration do not contra-indicate thoracoplasty. On the other hand, renal tuberculosis should be taken care of before any major thoracic operation is undertaken. Advanced age (above forty-five years), chronic anoxemia, often indicated by a high red cell count, high hemoglobin, and deficient oxygen saturation of the arterial blood, marked emphysema, and a marked decrease in vital capacity should be carefully considered as they are often more important criteria of operability than the anatomical characteristics of the pulmonary lesions. However patients with only one lobe or one lung functionally good have been subjected to extensive bilateral thoracoplasty with successful results.

For the majority of cases of unilateral cavities, pneumothorax is still the procedure of choice, but in cases with cavities above or at the level of the first rib, thoracoplasty is a better procedure. In the

author's cases in which pneumothorax could not be induced, the best results were obtained with thoracoplasty on from three to six ribs performed in one or two stages. Because of the excellent general condition of the patients there were no deaths. The postoperative and later results were excellent. In over 80 per cent of the cases the sputum became and remained free from tubercle bacilli. The duration of the treatment ranged from four to eight weeks. After six months of postoperative rest the patients resumed an active life. If pneumothorax does not produce a good selective collapse in from three to four weeks it should be abandoned and thoracoplasty should be advised.

In cases of apical adherent cavities with contra-indications to thoracoplasty and apicolysis the procedure known as "apicolysis with plombe" finds its indications.

In 95 per cent of all cases of adhesions, the adhesions are attached at the posterior chest wall. These are the ones that should be cut. Anterior, interlobar, and mediastinal adhesions interfere little, if any, with the closure of cavities. Partially sectioned short and stout adhesions often become elongated under the action of pneumothorax so that they can be completely and safely severed in a subsequent stage.

In 16 per cent of cases of suspended cavities, phrenic nerve interruption has given good results. When the apical cavity is 3 cm. in diameter and the lower lobe is healthy, thoracoplasty is the operation of choice.

In 60 per cent of the author's cases of giant cavities all surgical attempts were resisted. The treatment of such cases in which extensive thoracoplasties with or without packing have been unsuccessful constitutes a problem yet to be solved.

In cases of bilateral apical cavities, pneumothorax should be tried on both sides. If satisfactory collapse is produced on both sides, but the sputum remains positive, thoracoplasty should be carried out on the side with the more active lesions. If good collapse by pneumothorax can be obtained on only one side, thoracoplasty should be performed on the other side. When neither side can be collapsed, a bilateral staged thoracoplasty should be performed. In cases in which the sputum becomes and remains negative after thoracoplasty on one side the pneumothorax should be induced on the other side as in unilateral cases. When the sputum remains positive and the cavity on the pneumothorax side remains visible, pneumothorax treatment should be stopped and thoracoplasty performed on that side.

In cases with an apical cavity on one side and an extensive lesion on the other side it is best to perform thoracoplasty on the more affected side.

In cases with extensive lesions on both sides, surgical treatment is seldom possible. When the lesions do not extend beyond half of each lung, carefully staged thoracoplasties may yield surprising results. In the majority of bilateral cases it has been noticed that following successful collapse on one

side there is considerable improvement on the other side. Occasionally the lesion of the contralateral lung disappears completely. The explanation is that closure of the bronchial orifices and collapse of the cavity on one side arrests the growth of the bacilli contained in the cavity and further production of toxic products and tubercula. Thus there is a reduction of the allergic infiltration around the lesion of the other lung and probably of the whole allergic tissue reactivity of the lung causing abatement of the destructive tuberculous process.

In pure tuberculous empyema with active or healed pulmonary lesions thoracoplasty should be done. In cases of mixed infection, continuous irrigation after thoracotomy and drainage is the method of choice. The incision of thoracotomy must be placed near the anterior axillary line in order to avoid interference with the incision of the future thoracoplasty. The best treatment of mixed infection tuberculous empyema is prevention of the condition by obliteration of the pleural cavity before mixed infection complicates a pure tuberculous empyema.

CHARLES BARON, M.D.

Blasini, A.: Collapse Therapy of the Lung (La col-lapsoterapia polmonare). *Arch ital d cher* 1935 49: 5.

Blasini studied the effect of total pneumothorax, extrapleural plombierung (Brauer method), complete extrapleural thoracoplasty and phrenic evulsion on the normal rabbit lung to determine the comparative efficiency of the procedures and the nature and evolution of the structural changes. These studies were conducted especially because experimental researches on the mechanism of fibrosis, the circulatory changes and the amount of blood in the lung in collapse therapy have been few and most of them have not been controlled roentgenologically. In the author's investigations the animals were followed clinically and roentgenologically for periods ranging up to four months and the lungs were studied both histologically and by means of angiograms made after the injection of thorophamine.

The findings indicated that fibrosis is the primary and predominant feature in all the procedures and the change to which all other changes are allied. Pneumothorax produces a rapid and relatively uniform retraction, giving the maximum collapse comparable with the elasticity of the lung tissue. The fibrosis arises first in the peribronchial and subpleural tissue. Later an enormous perivascular fibrosis occurs.

Angiograms are of great importance in demonstrating irregularities in the outlines, branch interruptions of the vessels, and a noteworthy reduction in the field of the pulmonary artery. Formerly the circulatory changes were generally believed to be primary, but in this case they are secondary to the fibrosis in the other tissues.

The local changes after plombierung are reflected first and predominantly in compression of the bronchus, then and eventually in reduction of the

vascular caliber. The non compressed portion of the lung shows a characteristic hyperemia accompanied by hyperplasia of the peribronchial lymph follicles. In thoracoplasty lymphatic hyperemia is absent. The first changes are a diffuse hyperemia and reduction of the lung in size. Compensatory "poussées" due to circulatory disturbances are frequent. The end results of phrenic evulsion are the same as those of the other procedures but are brought about more slowly. The lesions are rather mild and relatively uniform. Peribronchial fibrosis appears late and is limited to the large divisions, while perivascular fibrosis predominates.

Although applying these findings to human cases with caution, Blasini deduces from them that pneumothorax best fulfills all the static and dynamic conditions favoring retraction of the elastic tissue and that therefore when practicable it is the most efficient method of collapse therapy.

The article is accompanied by numerous illustrations and an Italian, French, and German bibliography.

ST. F. MOORE, M.D.

Michelli, D., and Roulet, A.: Indications and Technique for Puncture and Evacuation in Serofibrinous Pleurisy (In Therapeutic Pneumothorax) (Indications et technique de la ponction et évacuation au cours des pleurésies séro-fibrineuses du pneumothorax thérapeutique). *Presse méd* 1935, 41: 1603.

Michelli and Roulet call attention to the fact that one of the drawbacks to the use of artificial pneumothorax in the treatment of pulmonary tuberculosis is the frequency with which pleurisy develops. They believe that if the pleurisy is of the serofibrinous type accompanied by fever and digestive disturbances, puncture for the evacuation of the exudate is indicated definitely.

In most cases the pleurisy develops early in the first six months of pneumothorax therapy. After repeated fluoroscopic examinations show that the exudate is considerable in amount and remains at the same level puncture is indicated. If the pleurisy does not develop until later, i.e. from eight months to two years after the institution of the pneumothorax, evacuation of the exudate by puncture is less imperative. However it should be done if there are signs of activity of the pulmonary process or if other special indications arise.

The puncture should be made in the patient in dorsal decubitus and the foot of the bed elevated at table height and strict precaution for asepsis should be taken. The puncture should be made in the mid axillary line at the level of the fourth intercostal space from 300 to 600 ccm of fluid may be removed at one time but if the amount is large more than one puncture is necessary in order to prevent too rapid decompression and a pleural reaction. If puncture at a high level involves danger of puncturing the lung the thorax is never observed an indirect or indirect reaction following the procedure. Removal of the exudate

prevents the formation of adhesions which might interfere with the success of the pneumothorax

ALICE M. MEYERS

Kulczycki, A., and Nowotny, G. *Thoracoplasty and Thoracic Muscle as a Physiological Pulmonary Plug. Also a Contribution to the Knowledge of Degeneration of Muscle* (Thorakoplastik und Brustmuskel als physiologische Lungenplombe. Zugleich ein Beitrag zur Kenntnis der Muskeldegeneration.) *Bull. internat. de l'Académie Polonaise de sc et d. lettres*, 1935, p. 135

Studies of the physiological plug produced by a suitable thoracic muscle plastic in rabbits demonstrated that, even a few hours after the operation, the muscle begins to show regressive changes which may eventually lead to almost complete degeneration of the muscle plug. It is possible to recognize different types of degeneration, such as fatty, finely granular, vacuolar degeneration, fibrillary segmentation, and particularly, waxy changes.

The characteristic feature of the entire course of the degenerative process in most cases is the small number of the nuclei in the degenerating fibers with their marked accumulation in certain places. In these accumulations, leucocytes, muscle cells, and interstitial nuclei are very often seen. As many sections show, the accumulations may originate from the emigration or elimination of the nuclei from the fibers.

The products of degeneration are either resorbed or undergo phagocytosis. In their place there begins a marked development of the connective tissue, the appearance of which indicates the physiological and anatomical death of the plug. The findings of the microscopic investigations confirm the observations of previous investigators regarding the behavior of muscle used as a plug. However, the studies of earlier investigators were usually made on muscle transplants.

The authors conclude from their findings that the muscle plug cannot exert such an effective pressure upon the lung as was originally assumed, and that the positive results achieved with the described procedure in man are attributable to the thoracoplasty alone and not to the action of the muscle plug.

LOUIS NEUWELT, M.D.

Kline, B. S., and Berger, S. S. *Pulmonary Abscess and Pulmonary Gangrene. An Analysis of Ninety Cases Observed in Ten Years.* *Arch. Int. Med.*, 1935, 56: 753.

In the past ten years at Mount Sinai Hospital, Cleveland (270 beds), 55 cases of pulmonary spirochetosis, better designated as "Miller-Vincent infection of the lung," including 39 cases of pulmonary gangrene, have been observed as well as 12 cases of bronchogenic pulmonary abscess and 23 cases of embolic pulmonary abscesses.

The embolic pulmonary abscesses were associated with areas of suppuration elsewhere in the body and were manifestations of a generalized pyemia or bacteremia.

Of the local bronchogenic pulmonary lesions, gangrene was observed more than 3 times as frequently as abscess. Although all the cases presented clinically the picture of so-called abscess of the lung, they were usually readily recognized by distinguishing characteristics as cases of gangrene and abscess, respectively. Twenty-two cases of pulmonary gangrene followed an operation, which in all but a few instances was performed under general anesthesia. Half the operations were on the oral cavity. This incidence emphasizes the danger of the aspiration of infective material from the oral cavity, especially during general anesthesia.

Ninety-six per cent of the patients with embolic pulmonary abscess died. The mortality in cases of bronchogenic abscess was 58 per cent. In contrast to these results are those in the cases of properly treated patients with pulmonary gangrene with cavitation, a much more severe process than pyogenic abscess. In 25 such cases the mortality was only 32 per cent.

Although at times it is a problem clinically and anatomically to distinguish abscess, putrid abscess and early gangrene with the organisms both of suppuration and of gangrene, this difficulty does not justify the consideration of pulmonary gangrene and abscess of the lung as a single entity. Pyogenic organisms never produce gangrene, whereas the fully developed and characteristic lesion produced by spirochetes, fusiform bacilli, and vibrios is not abscess, but gangrene.

The sputum in the cases of pulmonary gangrene was foul-smelling, grayish-brown or grayish-green, and occasionally blood-streaked or bloody, and when washed free of oral mucus, was found to contain characteristic oral spirochetes, fusiform bacilli and vibrios (the Miller-Vincent organism). In the cases of abscess the sputum was whitish-yellow, mucopurulent or purulent, and without an appreciable odor, and contained pyogenic organisms, usually staphylococci.

Arsphenamine therapy was particularly efficacious in the cases of pneumonitis with sputum containing Miller-Vincent organisms. However, the most striking results were obtained in the cases of frank gangrene. Seventeen of 25 seriously ill patients who were given intensive treatment with arsphenamine recovered. Large or maximum doses were administered routinely every two or three days except in some of the earlier cases. The favorable results in gangrene were in marked contrast to only 5 recoveries in 12 cases of bronchogenic abscess, a less severe process.

In general, transfusions, a diet high in calories, inhalations of oxygen, and supportive measures of all kinds were employed. Postural drainage was used routinely, as in the treatment of abscess, and should never be neglected.

The spirochetes, fusiform bacilli, and vibrios (Miller-Vincent organisms) of pulmonary gangrene are identical with those present in the mouth in practically all adults (in the interproximal spaces

between the gums and teeth) The lesion perhaps most frequently produced by these organisms is gingivitis.

The authors report the following clinical and pathological observations:

PULMONARY ABSCESS

Embolic pulmonary abscess. Among the cases reviewed there were 33 of staphylococcal bacteriemia or pyemia with embolic pulmonary abscesses. Fourteen of the subjects were infants or children. One patient recovered and 22 patients died. In 16 cases a postmortem examination was made.

The embolic abscesses were multiple and involved a number of lobes. They were relatively small and associated with areas of suppuration elsewhere in the body representing a manifestation of pyemia or bacteriemia. The clinical evidences of pulmonary involvement in the acute cases were not particularly striking and were masked by the symptoms of general sepsis. The mortality and the high incidence of the condition in infants and children are worthy of note.

Bronchogenic pulmonary abscess. There were 12 cases of bronchogenic pulmonary abscess. Ten of the patients were males and 2 were infants or children. There was a complicating bronchitis or pneumonia in 8 cases. The condition developed following operation under general anesthesia in 3 cases and following operation under local anesthesia in 1 case.

This type of abscess is aspiratory and, like embolic abscess, occurs most frequently in infants and children. It is usually limited to one lobe, a lower lobe most frequently. Five of the 12 patients recovered. The symptoms are those of pneumonia, which the abscess complicates, but resolution fails to take place. When the abscess begins to break down, abundant material, at times blood-streaked, is expectorated. An odor when present, is not distinctive. The odor is never foul like the odor of gangrene. Clubbing of the fingers may occur with surprising rapidity.

The greater incidence of bronchogenic abscess in children than in adults probably depends on the fact that the oral flora contains more staphylococci in childhood than later in life, and that before the tenth year of age children ordinarily do not harbor appreciable numbers of spirochetes, fusiform bacilli, and vibrios in their mouths.

PULMONARY SPIROCHETOSIS

The invasion of the pulmonary tissues by Miller Vincent organisms may induce bronchitis, pneumonitis, gangrene, pleurisy or a combination of these. The organisms concerned are generally present in the mouth of persons over ten years of age. They are to be found between the gums and the teeth and occasionally in the sinuses and the nasopharynx. Not infrequently when local conditions permit, they multiply enormously and cause from mild to severe inflammation and gangrenous ulceration. Patients

and physicians are frequently unaware of nodules which may be teeming with these organisms, free on the surface in the upper respiratory tract. Gingivitis with these organisms about the ear-naris is especially common.

Between the time of aspiration of the infected material and the onset of symptoms several days usually elapse. However symptoms may be apparent within two days or may not appear until after fourteen days.

Pulmonary gangrene. Among the cases reviewed there were 39 of pulmonary gangrene (over 3 times the number of cases of bronchogenic abscess observed). Thirteen-two of the subjects were adults. The youngest patient was three years of age and the oldest sixty-nine. Seventeen cases followed operation under general anesthesia, 4 followed operation under local anesthesia and 17 had no relation to operation.

Pulmonary invasion in these cases usually began with fever and occasionally with chills, pain in the chest, cough, and expectoration, symptoms which usually led to the diagnosis of pneumonia. At first, the physical signs and roentgen observations could not be differentiated from those of ordinary pneumonia. However, the history and the character of the sputum made possible the prompt diagnosis of Miller Vincent infection. The sputum, which at first may be mucopurulent and occasionally hemorrhagic and without an appreciable odor soon becomes abundant, thin, gray or brown-green, and intensely foul, and microscopic examination reveals the characteristic oral spirochetes, fusiform bacilli, and vibrios (Miller Vincent organisms).

Pulmonary gangrene and pulmonary abscess should not be confused with each other as they are distinct and well-defined diseases. Failure to recognize this fact may result in unnecessary loss of life since pulmonary gangrene with characteristic etiology and pathology may be combated by specific therapy which is much more efficacious than are the measures for pulmonary abscess.

It is of great importance to make the diagnosis of pulmonary infection due to the Miller Vincent organisms as soon as possible in order to prevent the extensive gangrenous ulcerative processes which this organism produces. Antispyphilic therapy with arsphenamine is most effective when it is begun early. Arsenic in the form of arsphenamine or neoarsphenamine, administered to the point of causing toxicity is the most valuable single measure in the treatment of pulmonary gangrene.

Oxygen therapy is often of value, and in the chronic stages may be necessary. Besides pulmonary spirochetosis and pulmonary gangrene caused by the Miller Vincent organisms, the authors had cases of pneumonitis caused by the same organisms and infection of the bronchi and pleura. Detailed descriptions of these organisms are included in the article. The important clinical facts in the 35 cases reviewed are summarized in a chart.

JOHN J. MALONEY, M.D.

Wangensteen, O. H. The Pedicled Muscle Flap in the Closure of Persistent Bronchopleural Fistula. *J Thoracic Surg*, 1935, 5, 27

Wangensteen first discusses the treatment of persistent bronchial fistulae by the use of Abrasanhoff's method of pedicled flaps from the latissimus dorsi muscle. He has used this method successfully in seven cases. Among the causes of such fistulae he includes (1) inadequate drainage of pleural exudate, (2) surgical drainage of pulmonary suppuration, (3) lobectomy and pneumectomy, and (4) spontaneous rupture of a lung abscess into the pleural cavity.

Bronchial fistulae persist because of (1) continued pulmonary suppuration, (2) the presence of rigid tissues adjacent to the fistula, and (3) pleural thickening which prevents the closure of bronchial stomas.

In discussing the various methods of dealing with bronchial fistulae, Wangenstein mentions

1 The necessity of waiting until pulmonary suppuration subsides

2 The mobilization of sufficient pulmonary tissue about the fistula to permit burying of the lung tissue

3 Thoracoplasty to approximate adventitious tissue around a fistula

4 The use of curettage, silver nitrate, or acriflavine excision of the fistulous tract followed by suture and inversion, plastic sliding of adjacent skin over the fistula, and the use of Beck's paste

5 Physiotherapeutic methods such as X-ray or radium irradiation

6 Abrasanhoff's method of applying pedicled muscle flaps over the fistula

The author describes the technique of the Abrasanhoff method and presents an illustration showing the various steps. He discusses his cases in detail.

In the second part of the article Wangenstein describes a ribboning operation of the intercostal muscles. The slits are made through the exposed perosteum after preliminary subperiosteal resection of the ribs in the area to be ribboned. The ribbons are tucked into the base of the empyema cavity and thus do away with the presence of a dead space. The advantages of the ribboning of the intercostal muscles are, first, preservation of the integrity of the muscles and their blood supply, and second, the prevention of abdominal muscle paralysis by preservation of the integrity of the intercostal nerves. The steps of the operation are shown in an illustration.

MINAS JOANNIDES, M.D.

Kjergaard, H. Cystic Lungs. *Acta med Scand*, 1935, 86, 407

After briefly reviewing the anatomy of congenital lung cysts, the author describes the following three groups which are clinically the most important:

1 Large solitary tracheobronchial lung cysts. Symptoms: Compression and, when the cyst is infected, fever and a purulent and fetid sputum. Dermoid cysts. Compression, hemoptysis, and sputum containing hairs.

2 Superficial valve vesicles. On rupture, simple pneumothorax occurs.

3 Honeycomb lungs. a Extensive honeycomb lungs in the newborn. Symptoms: cyanosis and attacks of suffocation. b Honeycomb lungs in children. Symptoms: recurrent bronchitis and bronchopneumonia. c. Honeycomb lungs in adults. Symptoms: intermittent infection of the cysts with coughing, expectoration, fever, emaciation, and hemoptysis. The disease is often mistaken for pulmonary tuberculosis with cavity formation.

It is emphasized that congenital cysts of the lungs do not always give rise to all the symptoms mentioned. Even very large and numerous cysts of both lungs may cause no inconvenience throughout a long life.

Cystic lung is not a disease *per se*. It is merely a structural defect. Except for newborn infants with extensive cysts, the patients are not ill until the cysts become infected or rupture.

HEART AND PERICARDIUM

Beck, C. S. The Development of a New Blood Supply to the Heart by Operation. *Ann Surg*, 1935, 102, 801

Stimulated first by numerous observations over a period of years that blood vessels, occasionally of considerable size, extend between the heart and adjacent tissues joined by adherent scar tissue, and secondly by the gradually developing thought that this condition might be brought about surgically to provide an accessory blood supply to hearts with an inadequate blood supply, Beck and his associates have devised an ingenious operation which has been successful in many experiments and in several clinical cases. In the experiments the collateral vascular bed was supplied from the pericardium, pericardial fat, pedicled grafts of skeletal muscle, mediastinal fat, or omentum brought up through an opening in the diaphragm and sutured to the heart. The results of these experiments were as follows:

1 Almost total occlusion of the right and left coronary arteries was compatible with life if the heart had been provided with a collateral vascular bed. The occlusion was accomplished by means of silver bands gradually constricted at repeated operations.

2 Dye penetrated the myocardium through the collateral bed.

3 A physiological need of the heart muscle for more blood was necessary for development of the anastomoses. This need for more blood was induced by gradually shutting off the normal blood supply. Anastomoses were present to some extent between the skeletal muscle and the myocardium even without constriction, but did not become well developed unless the constricting bands were applied.

4 These anastomoses were demonstrable after two weeks.

5 Distribution of blood to every part of the myocardium is of vital importance. Even if one relatively small portion of the heart muscle is rendered ischemic by the peripheral ligation of four

or five arterial branches, ventricular fibrillation develops and this is routinely fatal. Therefore the amount of protection provided by collateral beds was dependent upon the degree to which the normal arteries had been occluded. Partial but not complete protection was provided if the right coronary artery was occluded in one stage, and practically complete protection was obtained if the occlusion was done in two stages. Almost routinely successful also was the ligation in two stages of the ramus descendens of the left coronary artery or the ramus circumflexus of the left coronary artery. The compensatory mechanism has been established after the first ligation, and complete occlusion of the artery thereafter does not produce complete ischemia.

6 The collateral vascular bed acts not only as a new source of blood for the myocardium, but also as an anastomotic bridge that transports blood from the bed of one coronary vessel to the bed of another where the blood flow is deficient.

The presence of the new vascular bed was found not to have any harmful effect on the movement of the heart nor to cause any embarrassment of the general circulation. Adhesions to the heart may cause embarrassment by: (1) producing chronic cardiac compression by constricting bands of scar tissue, (2) anchoring the heart to the chest wall against which the heart must pull with every contraction, or (3) producing sharp angulation of the heart from its normal axis and reducing its efficiency. None of these complications was encountered in the many experiments performed.

The first human being to be subjected to the operation was a man forty-eight years of age who complained of sharp pains over the heart on exertion accompanied by dyspnea and distention and radiation of the pain to the left shoulder and down the left arm to the elbow. During these attacks he sometimes became cyanotic, very dyspneic, and extremely apprehensive. The condition was diagnosed as coronary sclerosis with angina pectoris, generalized arteriosclerosis, and mild hypertension. The operation was performed on February 13, 1935, under nitrous oxide-oxygen anesthesia. After the insertion of the pectoralis major had been incised to mobilize the muscle a curved incision was made around the periphery of the left breast and the skin and fascia were reflected outward. The inferior portion of the left pectoralis major was then incised to make the graft. The third, fourth, and fifth costal cartilages were exposed by incising the rest of the muscle parallel with the sternum and separating it from the chest wall, and the cartilages were removed. The intercostal bundles were incised laterally and left attached to the internal mammary artery. The pericardium was incised from base to apex, and the lining roughened by means of a burr, as was the epicardium. The coronary vessels could not be felt with certainty. The pedicle graft was divided longitudinally and both pedicles were swung around the circumference area of the heart and sutured laterally and posteriorly to the parietal pericardium.

The intercostal bundles and the medial margin of the pectoral muscle were then brought beneath the sternum and sutured to the parietal pericardium. With them, the internal mammary artery was brought to the surface of the heart. The reflected portion of the pectoralis major was sutured over the opening with the cut edges inverted to bring them into contact with the heart. The flaps were then sutured and the wound closed without drainage.

After seven months the patient is working as a gardener. He has no pain and he claims that he is cured. He was able to do light work two months after the operation, and except for slight indigestion after meals for a few weeks following the operation, he has had no untoward symptoms. In all, seven patients have been operated upon by the described method. In one other case a definitely beneficial result has been obtained. In four cases the length of time that has elapsed since the operation is too short for judgment of the result. One patient died a week after the operation from a thrombus in the left common iliac artery which had developed at the site of an atheromatous ulcer in the abdominal aorta. When examined at autopsy the condition of the operative field was found satisfactory.

JAY EUGENE THORNTON, M.D.

ESOPHAGUS AND MEDIASTINUM

Harpersrecht, K.: Congenital Esophageal Stenosis (Ueber angeborene Oesophagostenose) 1934. Kdl. Dissertation.

The author first reports a personal case of esophageal stenosis. The patient was a seven-year-old girl who was well developed mentally and very thin, weighing only 19 kgm. From soon after birth up to the time of her admittance to the hospital she had vomited a large amount of her food. Her appetite remained good. Only soft foods in small quantities and administered very slowly were tolerated. Recently, the symptoms had greatly increased and her general condition had become worse.

Sounding with an ordinary stomach tube revealed an unresolvable obstruction about 24 cm from the front teeth. The roentgenogram showed a long contraction of the esophagus at the level of the bifurcation of the trachea and above this a marked dilatation. Above the cardia the esophageal lumen was normal. A diagnosis of congenital stenosis of the esophagus was made. There were no anatomic or clinical features to indicate any other pathogenesis of the condition.

Under nitrous oxide anesthesia induced with a percent protocol the stenosis was dilated to accommodate a Charrière bougie No. 8. After the child had recovered under high caloric feedings and had gained 4 kgm. in weight, a Nitel gastrostomy was done under ether narcosis. She was then fed exclusively through the fistula. The pains which had recently developed ceased when the esophagus was thus placed at complete rest and repeated sounding could be done. The Charrière bougie No. 8 again

passed smoothly through the stenosis. Under the fluoroscope the margins of the stenosis were visualized with contrast medium after a unilateral catheter had been introduced through the nose (2.5 cm). The catheter was carefully passed into the stomach and brought out through the gastric fistula. Two heavy silk threads were then pulled through with it and left in position. After ten days the stenosis was dilated from 2.0 to 6 mm. by the catheter's sound. The roentgenogram revealed marked retraction of the dilatation above the stenosis. During dilatation the child complained of tearing pain behind the sternum. After she had been at home ten days the old symptoms reappeared. Within thirteen days it was possible to dilate the stenosis to 1.5 cm. After twelve days of rest there was sudden partial dilatation although an opening of 1.03 cm. is attained. It is to be assumed that the rather rapid dilatation from .9 mm. to 1.5 cm. and the feeling from above had provoked increased ulceration and spasm. Subsequent treatment was changed in that the forward part of a Nelaton catheter of proper width was introduced between the two threads until it was directly at the site of the stenosis and left in place for four hours. Since then the child has been free from symptoms and the fistula has been closed surgically. The improvement in the general condition, however, has not kept pace with the relief of the stenosis. There is a productive cough which may be due to tuberculous bronchiectasis or an esophago-tracheal fistula with a very narrow communication. The dilatation is repeated at intervals of three or four weeks.

Following this report there is a description of the normal esophagus and its embryology (J. in Roman). The author then describes the congenital anomalies of the esophagus reported in the literature—complete absence of the esophagus, complete or

partial duplication, and so called uncomplicated esophago-tracheal fistula with normal development which, however, are joined by a fine fistula. The anomalies of particular interest with reference to the case reported are the following partial obliterations:

1. A simple blind ending. This is usually found at the junction of the pharynx and the esophagus or in the upper portion of the latter. The longer or shorter stricture portion is followed by a normal lower end (Kreuter's uncomplicated esophageal atresia).

2. A simple blind ending associated with a communication between the esophagus and the trachea. This is the most common of all congenital malformations of the esophagus.

3. The so called membranous obstruction and the ring, or tube hyped stenosis with or without tracheal communications.

4. Congenital dilatation and retraction of the esophagus.

Marked congenital anomalies of the esophagus are often associated with other malformations.

There is then an exhaustive discussion of the much debated question as to the cause of congenital esophageal stenoses. The theory that they are the result of fetal inflammatory processes has been practically abandoned. More tenable are the theories based on embryonic developmental processes. Of fundamental importance from this point of view are the studies of Tandler on strictures of the duodenum, upon which Kreuter's studies of strictures of the esophagus were based. Kreuter's findings have been confirmed by most investigators.

In addition to these embryological theories there is the developmental mechanical theory (Schmitz), to which the author attaches special importance.

In conclusion Harpuecht presents an extensive collection of statistics from the literature.

(A. FRANK) LEO M. ZIMMERMAN, M.D.

SURGERY OF THE ABDOMEN

GASTRO-INTESTINAL TRACT

Lang, H. J.: Perforation of Gastric and Duodenal Ulcers into the Free Peritoneal Cavity. Experiences and Observations in 183 Cases (Über den Durchbruch von Magen- und Zwölffingerdarmgeschwüren in die freie Bauchhöhle. Erfahrungen und Beobachtungen an 183 Fällen). *Beitr. z. Klin. Chir.* 933, 16 43

This report is based on the author's experiences in the treatment of 183 cases of perforated gastric and duodenal ulcer in the years from 1920 to 1934. During this period there was an unexplainable increase in the incidence of perforation in the patients with ulcer who were admitted to the hospital. Half of the patients with perforation were laborers of the type usually found in large cities. Many were chronic alcoholics. The majority were undernourished and weak because of protracted gastric disturbances and inability to follow difficult dietary regimens because of occupational or home conditions.

Twenty-two (12.5 per cent) of the patients were women. Seventeen (77.3 per cent) of the women died. Twelve of the women were not operated upon, being moribund when they were admitted to the hospital. The average age of the women was sixty-three years, a fact suggesting that in the differential diagnosis of doubtful abdominal conditions in women of advanced age the possibility of perforated peptic ulcer should be borne in mind.

Most of the perforations occurred during the winter. No familial predisposition could be established. The incidence was highest in chauffeurs and waiters. Smokers were well represented.

A significant observation was increased severity of the gastric distress which may be interpreted as suggesting imminent perforation. This so-called augmented premonitory pain occurred in 50 or approximately one-third, of the cases. Vomiting, an increased pulse rate, and the temperature were of no value in the differential diagnosis.

Forty-five per cent of the patients were operated upon within six hours after the perforation; 20.2 per cent, between six and twelve hours; 9.8 per cent, between twelve and eighteen hours and the rest after eighteen hours. Early operation was therefore possible in fewer than half of the cases. Board-like rigidity of the abdominal wall was always present. The differentiation from perforated appendix was very difficult. In advanced cases complicated by diffuse peritonitis it was practically impossible. The pain referred to the shoulder which was described by Oelchler was of some value. Pneumoperitoneum is pathognomonic of ulcer perforation, but was not always demonstrable. The gastric crass of tabes simulates ulcer perforation.

very cloudy but a leucocytosis with a shift to the left suggestive of perforation is not found in the undifferentiated blood picture of gastric tabes.

It is often very difficult to find the site of the perforation. Occasionally there are multiple perforations. A second perforation was overlooked in 5 of the cases reviewed. There were 25 precardial ulcers, 112 ulcers in the pyloric region, and 20 ulcers in the horizontal part of the duodenum. All of the lesions except 2 were on the anterior wall. The 2 exceptions were not found during operation, probably because the patient's poor condition due to a perforation which had occurred ninety-six hours previously did not permit extensive manipulation.

The most effective treatment was simple closure. This was always done with 2 rows of sutures. The first row consisted of interrupted catgut sutures going through all 3 layers. The second was of silk and included only the serosa and muscularis. The sutures should be inserted parallel with the long axis of the stomach so that, when the suturing is completed, the row will be at right angles to the long axis of the stomach. In the cases reversed, gastro-enterostomy was done only when stenosis appeared inevitable. The Newman (Braun) omental cell drainage was used only in the most desperate cases. In a high percentage of the cases conservative treatment yielded satisfactory end-results and primary resection was avoided.

The mortality of 40.6 per cent was secondary to the delay between perforation and surgical intervention. The poor condition of most of the patients led to many postoperative complications. Half of the mortality was due to peritonitis. There were 31 cases of primary peritonitis. In 20, operation was not performed in 4, the suture line leaked and in 5, a second perforation was neglected. Twelve patients died of pneumonia, 1 of empyema with a subphrenic abscess, and 5 of subphrenic abscesses alone. Two patients not operated upon died of erosion of a blood vessel and peritonitis, 2 of paralytic ileus, 1 of volvulus of the small bowel, 2 of gastric stony 1 of peritonitis with pulmonary tuberculosis, 3 of typhus with aortic insufficiency (no peritonitis) and 2 of late postoperative perforation of another ulcer.

The majority of the patients were poor operative risks. (From) *Samuel J. Foxworth, M.D.*

Friedemann, M.: The Health of 368 Persons From Ten to Seventeen Years After Radical Operation for Gastric Ulcer (Über den Gesundheitszustand von 368 Personen 10-17 Jahre nach der Radikaloperation wegen Magengeschwürskrankheit). *Zentralbl. f. Chir.* 933 p. 1456

Of 360 patients with gastric ulcer 207 were subjected to a Billroth I and 53 to a Billroth II resec-

tion. Three hundred and twenty-four were re-examined by the author from ten to seventeen years after the operation. Of minor interest in the follow-up were recurrences, gastritis, the blood picture, the blood sugar in the presence of recurrence of the symptoms, disease of adjacent viscera, and the general condition as affected by psychic influences.

Unfortunately the patients were not classified according to the number of years that had elapsed since the operation. The result of the operation as designated is "good" when the patient is free from symptoms and tolerates a liberal general diet as "good" when he was free from symptoms only when certain foods were eliminated from the diet and as "fair" when he still had symptoms but the disturbances were less severe than before the operation.

Of the 222 patients subjected to the Billroth I operation 67 (30.2 per cent) died and 155 (69.8 per cent) survived. Of the 155 subjected to the Billroth II operation 56 (36.0 per cent) died and 99 (64.0 per cent) survived. Of the 155 subjected to the Billroth I operation 56 (36.0 per cent) died and 99 (64.0 per cent) survived. Of the 155 subjected to the Billroth II operation 56 (36.0 per cent) died and 99 (64.0 per cent) survived.

The Billroth II operation therefore gave slightly better end results than the Billroth I operation. When these patients were operated upon the author resected a smaller gastric segment than is now customarily excised. He believes that more extensive resection will probably decrease the incidence of recurrence, but may be followed by other complications. (WRIGHT BLUNT) SURGEON J. H. BLUNT, M.D.

Herr H. D., and Berger R. A. Bone Metastasis in Carcinoma of the Stomach. *Am. J. Cancer*, 1935, 25, 51.

The reported incidence of bone involvement in cases of carcinoma of the stomach ranges from 1 to 22 per cent but is usually under 6 per cent. It obviously depends upon whether the observations were made at autopsy or roentgenographically and upon the thoroughness of the search.

In the literature the authors have found 133 apparently authentic cases with a case or two of direct invasion and 1 doubtful case. To these they add 3 cases with roentgen evidence of osseous involvement and 2 in which osseous metastases were found at autopsy.

The discussion includes the blood picture, site of metastasis, type of metastasis, type of primary lesion, method of metastasis, and the age of the patient. The article is concluded with the following summary:

1. Bone metastasis from carcinoma of the stomach is a relatively uncommon finding.

2. One hundred and forty-three cases have been collected from the literature. To these 5 cases have been added.

3. Metastasis to bone is most frequent at the sites of the red marrow—spine, ribs, femora, sternum, and pelvis.

4. Metastases are either osteoplastic, osteolytic, or both, regardless of the characteristics of the primary lesion.

5. The site, size, and type of the primary tumor seem to have no relation to the appearance of the osseous involvement.

6. Bone metastases are more frequent in the relatively young, but may occur at any age.

7. Dissemination probably occurs through the blood stream.

8. Some cases present an anemia which cannot be distinguished morphologically from a primary type and may show a large percentage increase in immature cells of the marrow.

CARL STUPPE, M.D.

Wakeley, C. P. G., and Willway, F. W. Intestinal Obstruction by Gall Stones. *Brit. J. Surg.*, 1935, 3, 372.

Acute mechanical obstruction of the bowel by a gall stone is a well recognized though uncommon entity. Most of the gall stones gaining entrance to the intestinal tract are voided naturally. Stones sufficiently large to cause bowel obstruction never pass the entire length of the bile duct, but enter the bowel by a process of ulceration. Such stones are usually more than 1 mm. in diameter. Because of the large number of symptomless cases of gall stones, obstruction of the bowel by impacted gall stones is not likely to become infrequent. In such cases there is always the possibility of symptomless ulceration with subsequent obstruction. After causing obstruction a gall stone may become free and be voided naturally.

The authors review eleven cases of intestinal obstruction by gall stones in which operation was performed. The ages of the patients ranged from forty-four to eighty-one years and averaged sixty-six years. All of the patients were women. There were 3 deaths, a mortality of 27 per cent. Not infrequently operation was delayed because the obstruction tended to be intermittent. Four of the patients gave a definite gall bladder history. The others complained of dyspepsia, indigestion, or other vague symptoms. A preoperative diagnosis of intestinal obstruction due to a gall bladder stone was made in only two cases. In all of the cases a stone was impacted in the small bowel. One patient had a second stone impacted in the rectum. Six patients had a cystoduodenal ulceration, and one, an ulceration of the common duct. In the others it was impossible to be certain which form of fistula was present.

With regard to the mode of production of biliary fistula, the authors state that the gall bladder seems to have a natural tendency to become adherent to adjacent structures. Gall stones favor fistula formation by causing pressure necrosis of the gall bladder wall. Fistula so produced open most frequently into the duodenum or colon. After the stones have been successfully extruded into the bowel, contraction of the fistula begins. This is followed by shrinking of the gall bladder. The projecting gall stone may be

lodged in the lumen of the intestine for some time before it becomes dislodged. Specimens showing the different types of biliary fistula are described.

JOHN W. NICHOLS, M.D.

Hartman, H. R.: Lesions of the Small Bowel Other Than Peptic Ulcer. *Med Clin North Am* 1915 10 161.

A search of the files of the Mayo Clinic for the last five years yielded the histories of 466 cases of lesions of the small bowel exclusive of duodenal ulcers, duodenitis with a probable relationship to ulcer and gastrojejunal ulcers.

Of the 59 neoplasms in the cases reviewed 31 were malignant and 28 benign. Of the malignant neoplasms, 22 were carcinomas and 9 were sarcomas. No segment of the small bowel, in these cases, escaped either carcinoma or sarcoma. When it is known that a patient has a primary carcinoma in some part of the gastro-intestinal tract, there is only 1 chance in more than 100 that it is in the small bowel. During the later years of life carcinoma occurs in all divisions of the small bowel. The history is comparatively short and the symptoms may be referable to the bowel. Abdominal pain or gastric distress may be mistakenly attributed to ulcer or to disease of the gall bladder. Indications of intestinal obstruction, either present at the onset of symptoms or developing as the disease progresses, should impel the clinician to ask for a roentgen examination to determine the condition of the small bowel. His attention should be directed to the small bowel particularly if the pain tends to have a para umbilical or low abdominal situation. Occult or gross hemorrhage may occur. Anemia and the persistent presence of occult blood in the stool must be explained on the basis of a gastro-intestinal lesion which may be in the small bowel. The latter possibility should be investigated by roentgen examination if the lesions cannot be found elsewhere. The roentgenologist finds little evidence upon which to base a diagnosis, and the manifestations are usually limited to signs of obstruction with dilatation and prominent valvulae conniventes or occasionally a filling defect momentarily observed as the opaque bolus passes along the 22 ft. of small bowel. The roentgenologist is entirely unable to distinguish the type of the tumor. Metastasis is common. It may be extensive if the lesion is growing rapidly as a malignant lesion of the small bowel is seldom diagnosed early. Sarcoma occurs less frequently than carcinoma. The clinical history and physical and roentgen signs differ little from those of carcinoma. The differential diagnosis must be made by microscopic examination of tissue.

In 1933, Rankin reported a total of 33 cases of benign neoplasms of the small intestine observed at the Clinic. Since then 9 additional cases have been encountered. As a rule the tumor was found unexpectedly at operation, but occasionally the diagnosis was made by roentgen examination. Symptoms, when present, often resembled those of ulcer.

Hematemesis and melena sometimes occurred and, in a few cases, were prominent signs. In a few cases an elusive tumor was palpable. About half of the patients with symptoms from the tumor had signs and symptoms of obstruction. These patients were of 2 classes. In one class there was a sudden, sharp colicky pain with abdominal distention, nausea, and vomiting. In the other there were slowly increasing signs of distention, hiccoughing, and pain, perhaps with visible peristalsis. The acute symptoms of obstruction are caused by intussusception while the more slowly developing signs of obstruction are due to gradual encroachment of the tumor on the lumen of the bowel. Intussusception in the earlier years of mature life may be suspected to be associated with a benign tumor. When the diagnosis of a benign or malignant neoplasm of the small bowel is made preoperatively it must be based on roentgen evidence.

The most common benign neoplasms found were myomas. These were of various types. Three were in the duodenum, one was in the jejunum, and three were in the ileum.

Under the heading "noncellulosic lesions of the small bowel" were classed 212 cases. Meckel's diverticulum was found in 97 cases and other forms of diverticulum in 84 cases. As would be expected, the second most frequent location of acquired diverticula was the duodenum. Seventy-one diverticula were in the duodenum, 10 in the jejunum, and 3 in the ileum. Diverticula of the small bowel tend to be larger than diverticula of the large bowel and as a rule have large gaping orifices. The author was unable to find any proved instance of inflammation of an acquired diverticulum of the small bowel in the cases reviewed.

The lesion of the small bowel next in frequency to diverticula in the reviewed cases, including those of neoplasm, was fistula. There were 77 cases of fistula. All but 8 of the fistulas developed after an operation. The ileum was involved in 54 cases, the duodenum in 11, and the jejunum in 6. Two fistulas not specifically located probably involved the jejunum or ileum.

Intrinsic occlusion of the lumen of the small bowel occurred in 53 cases. By "slow" is meant a slowly pain arising from a segment of the bowel as the result of a local failure of peristaltic function due to an undetermined cause. Dilatation of the bowel is usually extreme and the patient's condition critical. Therefore detailed exploration is not possible. Only once was the lesion causing ileus accurately located, and then, oddly enough, it was found in the duodenum. In the 52 other cases in which a diagnosis of ileus was made the paralyzed segment, as not found, but was either in the ileum or jejunum. Volvulus occurred in 16 cases. In 1 case it was in the jejunum and in 9 cases in the ileum. In 6 cases the affected segment was not determined. In all cases in which the cause was discovered, it proved to be adhesions. Intussusception occurred in 8 cases. When the segment involved in the intussusception was determined it was found always to be in the

ileum The patients were children ranging in age from four months to fifteen years However the condition can occur in the mature years of life Symptomatically, these lesions are suggested clinically only by signs of obstruction of the small bowel, namely, cramp-like pains low in the abdomen which are sudden in onset and often para-umbilical in situation Cramps from obstruction of the small bowel recur at shorter intervals than cramps from obstruction of the large bowel Other than these features, the symptoms of obstruction of the small bowel resulting from ileus, volvulus, or intussusception are the same as those produced by other varieties of obstruction The majority of the 32 cases of inflammation of the small bowel presented symptoms of obstruction of the bowel On the other hand, diarrhea was a frequent symptom and occasionally pain and tenderness were present The diagnosis was made, of course, from the roentgen signs of obstruction and the effacement of the mucosal folds of the small bowel that indicate inflammation At operation, the inflamed segment sometimes appeared as a mass resembling that produced by tuberculosis or malignant disease, but microscopic examination of the removed tissue revealed non-specific inflammation occasionally with marked edema and giant cells Edema of the tissues was often apparent grossly The lesions were in the duodenum in 1 case, in the jejunum in 7 cases, and in the ileum in 18 cases In 6 cases their site was not recorded

The 32 cases of tuberculosis of the small bowel were classical according to symptoms Usually, the intestinal lesion was associated with tuberculosis elsewhere, often with pulmonary tuberculosis This series confirmed the observation that tuberculosis of the bowel is usually confined to the terminal part of the ileum and the proximal part of the colon There were 7 cases of simple, non-specific ulcer of the small bowel Operation was performed in 4 cases because of unexplained melena which in 3 cases was associated with chronic anemia and in 1 case with cramp-like abdominal pain Of 3 patients who were operated on because of obstruction, two had complete obstruction of the bowel and 1 suffered from cramp-like pains, distention, and diarrhea characteristic of incomplete obstruction Simple ulcers of the small bowel are rare

Partsch Tumors of the Colon (Dickdarmgeschwuelste) *Zentralbl f Chir*, 1935, p 1277

This is a report on experience since the report of Nordmann on the German Surgeon's day in 1926 The distribution of the site of carcinoma in any particular region of the bowel shows, in all statistics, unusual uniformity A third of the tumors are in the right half of the colon, a third in the sigmoid, and a third in the left portion of the colon and the transverse colon

With improvement in early diagnosis, operative results must improve Approximately from seven to ten months elapse after the appearance of the first symptoms before carcinoma of the colon is diag-

nosed This period must be markedly reduced In the beginning, general abdominal symptoms, such as fullness and borborygmus, are outstanding The feeling of fullness is more common in the presence of tumors of the left side than in the presence of tumors of the cecum because in the cecum a growing neoplasm causes hardly any obstruction to the passage of the still rather fluid intestinal contents

In roentgenological examination the oral administration of contrast media is strictly to be avoided if ileus is to be prevented Repeated examination with a barium enema, with demonstration of the membrane relief, is necessary to exclude the presence of tumor with certainty In some cases clarification of the disease picture requires exploratory laparotomy Before operation the patient should be carefully examined with particular regard to the cardiovascular system, kidneys, and intestinal function, and everything possible must be done to counteract the damage generally caused by the presence of a tumor and to prepare for the serious procedure ahead For pre-operative preparation the best methods of improving the general condition are small repeated blood transfusions, the intravenous infusion of dextrose solutions, and a light, high calorie, low residue diet The investigations of Rankin on the use of intraperitoneal vaccination to increase the resistance of the peritoneum are worthy of note

In regard to the question of single or multiple operations there is still no uniformity of opinion It is certain that any state of ileus, any increase in tension of the colon above the stenosis, or any severe infection must be taken care of before resection of the tumor can be carried out, whether this is on the right or the left side The singular fact that in uncomplicated cases the mortality of multiple and one-stage resections is practically the same explains the favor in which the one-stage resection is held by German intestinal surgeons It is interesting to note how, in the course of time, those operations are attempted which, through changes in technique, try to make certain the unquestioned advantage of the one-stage resection.

(LEHRNBECHER) CLAUDE F DIXON, M D

Cutler, O I Mild Acute Appendicitis Appendiceal Obstruction *Arch Surg*, 1935, 31 729

To determine why benefit may result from the removal of appendices showing little evidence of inflammation, the author compared the complaints of a group of patients with the findings at operation and the condition of the appendices removed The appendices studied consisted of 344 removed in the past few years in one hospital This series represented cases of frankly acute inflammation of the appendix, a number of cases in which removal of the appendix was done as a routine procedure at operation on some other organ, and cases of so-called chronic appendicitis The observations made in the different groups of cases are recorded separately and briefly correlated The appendices removed at the

time of operation on some other organ were used as a control group.

Among the 344 cases studied there were 103 in which the appendix appeared to be the site of trouble but presented only slight or no evidence of an active inflammation. The most constant and impressive evidences of abnormality in the 103 appendices were indications of a functional disturbance rather than of inflammation. The appearance of the appendices and a few clinical observations in the chronic group of cases are discussed. Statistics concerning the 77 cases of frankly acute inflammation are briefly given. There were 8 cases of healing acute appendicitis in this series and 34 of early or mild acute appendicitis.

Cutler believes that the failure of the appendix to empty properly is a common cause of repeated attacks of pain in the right lower quadrant of the abdomen. He states that such pain is frequently associated with reflex nausea and vomiting. In many cases the cause of obstruction is spasm of the musculature of the ampulla of the appendix. Elevation of the temperature and leucocytosis count appear not to occur unless acute inflammation is present. Cutler believes that until some better method of relieving obstruction is found removal of the obstructed appendix is warranted. Appendiceal colic due to obstruction may be most distressing. The study of the control series of cases indicated that some patients may have appendiceal obstruction and complaint of it relatively little. Many attacks of acute appendicitis are very mild. Repeated mild attacks may cause thickening of the submucosa and narrowing of the lumen with resulting appendiceal obstruction and obliteration of the lumen of the appendix. Frequently attacks of acute appendicitis are very mild and unrecognized. A study of the blood count, particularly the Schilling count, is of definite aid in determining the severity of the condition. Since it is not possible to predict accurately the course of events in the appendix, early operation is urged.

EARL C. ROBERTSON, M.D.

Stewart Wallace, A. M.: Pyelophlebitis Complicating Acute Appendicitis and Its Treatment by Ligation of the Mesenteric Veins. *Bull J Surg* 1935 13 30

The author reports the case of an unmarried girl eighteen years of age who was admitted to the hospital on March 1, 1935 with a three days history of abdominal pain and vomiting and with obvious signs of general peritonitis. At operation, pus was found in the general peritoneal cavity and welled up out of the pelvis. Cultures revealed colon bacilli and non hemolytic streptococci. The appendix was gangrenous and perforated. The appendix was removed and a large rubber drainage tube inserted into the pelvis. Four days later the patient complained of a colicky pain in the abdomen and had two definite rigors. On the following day another severe chill occurred. The edges of the wound were red and inflamed and the drainage tube discharged foul smelling pus. Taylor made a pre-operative diag-

nosis of ascending mesenteric thrombophlebitis and portal pyemia.

At a second operation the superior mesenteric vein was found to be thrombosed from the extreme radicals supplying the cecal area to within 1 in. of its junction with the splenic vein. The liver was as often. There was no evidence of infarction of any part of the bowel. The superior mesenteric vein was approached through the posterior layer of the transverse mesocolon and ligated proximal to the upper limit of the thrombus. The ligation was followed by sudden and marked engorgement of all the celiac veins. The abdomen was closed without drainage. The patient was extremely shocked, but responded to stimulants and heat treatment. The following day her general condition had very greatly improved. She experienced no more chills. The liver engorgement subsided. A normal result followed an enema on the first day and thereafter the bowels moved normally. Convalescence was complicated by a pelvic abscess which finally drained into the rectum. The patient was discharged April 26 with the incisional wound completely healed. She later returned to work and has remained well for three years.

JOHN W. NIXON, M.D.

Gabriel, W. B., Dukes, C., and Bussey H. J. R.: Lymphatic Spread in Cancer of the Rectum. *Bull J Surg* 1935 13 305

The authors report the procedure and the results of careful dissection of lymph nodes in specimens removed for malignancy of the rectum in 70 peritoneo-abdominal and 30 perineal resections.

The specimens were immediately stretched on frames to normal length and breadth and fixed in formalin. The lymph nodes were then carefully dissected and located with calipers on actual and drawings. As many as 60 lymph nodes were found in a single specimen. The number average was 25. The condition of the lymphatics was studied in the peritoneo-abdominal specimens as high as the inferior mesenteric and paracolic nodes. The latter were affected in only 1 advanced case.

Glandular metastases was found in 63 of the 100 cases. In half of the cases 3 or fewer lymph nodes were involved. "The fact that so many patients received surgical treatment in the early stages of lymphatic involvement is real evidence that rectal cancer spreads slowly from gland to gland. If lymphatic spread had been rapid, we should have expected to find the cases falling mostly into groups with no glands or with several glands involved."

Lymphatic dissemination as described as occurring first in the perirectal tissue in the immediate vicinity of the growth. After that, a continuous spread takes place along the lymph nodes accompanying the superior hemorrhoidal vessels. Until these channels are all blocked, no downward or lateral lymphatic spread is found.

More than 2,000 lymph nodes were examined. Those considered negative grossly were usually diagnosed correctly but of these considered cancerous

grossly microscopic examination revealed diagnostic error in 61 per cent. Hence the most common error was the presumption that lymph nodes enlarged as the result of inflammation were affected by metastasis.

Cases in which dissection showed that glandular spread had reached the point of ligation of the blood vessels were classified as C- cases. In such cases the prognosis was grave. Those in which the point of ligation was not reached were classified as C₁ cases. In this group the prognosis was better. Of the 62 cases in which metastasis was recorded, 43 were classified as C₁ and 19 as C₂ cases. In a few cases distant metastasis took place when the lymphatics were free. These were presumed to be instances of vascular spread.

The authors present these 2 groups as an apparent explanation for the survival of a certain percentage of patients with glandular involvement. It is assumed that those surviving were in the C₁ group and that in this group all affected tissue was removed. There is reason to suspect that in cases of the C₂ group lymph nodes at a higher level were involved.

Twenty-four illustrative cases are presented with drawings. The high proportion of C₁ cases in which the condition was clinically operable encourages the performance of the combined excision. Of 70 specimens removed by perineal abdominal excision only 11 belonged to the C₂ group.

The authors conclude that careful dissection of operative specimens offers a valuable prognostic aid in cases of cancer of the rectum in which lymphatic spread has taken place. CLAUDE F. DIXON, M.D.

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

Judd, E. S., Snell, A. M., and Hoerner, M. T.
Transfusion for Jaundiced Patients. *J. Am. Med. Ass.*, 1935, 105: 1653.

Almost every one is familiar with the beneficial effects of the transfusion of blood, which are reflected in the decrease in the coagulation time of the blood and in the general improvement of the jaundiced patient. However, the reason for these changes has always been obscure. The method of transfusion employed most frequently at present involves the use of sodium citrate as an anticoagulant. Because sodium citrate in itself has been shown to lower the coagulation time, it might be argued that the improvement that follows the administration of citrated blood is attributable to the sodium citrate. However, this cannot possibly be true, for numerous investigators have found that equally good, or even better, results can be obtained by utilizing whole blood. For several months Judd, Snell, and Hoerner adhered to the plan of using whole blood in transfusions in order to obtain comparative data on a large series of jaundiced patients. For a while they thought that there was less tendency to bleed than when citrated blood was used but further experience seemed to indicate that the

transfusion of citrated blood is of as much value as is the transfusion of whole blood. The best method of preventing hemorrhage is to give one or more transfusions of blood before operation. In some cases the transfusion of blood should be carried out both before and after surgical correction of the condition.

In one case the observation that a transfusion of blood appeared to relieve anoxemia led to further investigation of the problem. In another instance, repeated transfusion not only increased the hemoglobin content and thus the oxygen capacity of the blood but also improved the percentage of oxygenation of arterial blood. Of course these beneficial effects may be ascribable to improvement in the circulation, but they raise the question whether the hemoglobin produced by a diseased liver is abnormal.

The effect of transfusion on a very anemic patient who has hepatic disease is to improve the blood both quantitatively and qualitatively as a vehicle for the transportation of oxygen, the amount of oxygen for delivery to the tissues being thus increased. These changes may be attributable to alterations in the carbon dioxide, electrolyte, or protein content of the blood or to changes in its pH rather than to changes in the hemoglobin itself. This matter is still under consideration. The importance of the last-mentioned factors does not detract from the clinical value of transfusions to patients who have hepatic lesions, for the anoxic and anemic patient apparently receives more benefit from transfusion than can be attributed to the amount of hemoglobin transferred. In these instances, repeated transfusions and inhalations of oxygen are indicated since they relieve the anoxemia whether it is of the anoxic or of the anemic variety and thus protect the hepatic parenchyma from the effect of prolonged low oxygen tensions.

Although it is difficult to determine the cause of anoxemia definitely, in cases in which the phenomenon appears, it is quite likely that it has some effect on the progress of the hepatic lesion. It already has been mentioned that reduced oxygen saturation of the arterial blood, produced experimentally, leads to atrophy of the central portion of the hepatic lobule. It may also render the hepatic tissue more vulnerable to influences that could otherwise have been withstood.

Several points in this work deserve additional discussion. Anoxemia is not present in every jaundiced patient, but if jaundice exists the degree of unsaturation appears to have some relationship to the general condition. It is possible also that anoxemia, when associated with hepatic disease, may have a deleterious effect on the progress of the hepatic lesion itself. Consequently, if the anoxemia persists, the liver is likely to be extensively injured and as a result the tendency to bleed will be materially increased.

In order to treat the condition intelligently, it should be borne in mind that the anoxemia may be of two types: (1) anoxic anoxia, which can be corrected by placing the patient in oxygen, and (2) anemic anoxia, which will respond to the transfusion of blood. In the latter instance there is not only an

absolute anemia, as is shown by the decrease in the amount of hemoglobin present, but also a relative anemia, because the ability of the hemoglobin to carry oxygen is diminished in certain cases. It can easily be realized that under the latter circumstances, which appear to exist only in the anemic patient, the administration of oxygen alone cannot relieve the situation. On the other hand, marked benefit, for which a theoretical basis has been demonstrated, is apparently derived even from the comparatively small amount of blood given in the transfusion.

Without reference to the mechanism whereby anorexia is produced in cases of hepatic disease, it is apparent that transfusion has a favorable influence on it in at least three ways:

1. More hemoglobin is supplied, the oxygen capacity of the blood being thereby increased. It should be remembered that erythrocytosis is one of the physiological responses to anoxemia, and that because of a deficient production of hemoglobin this cannot readily occur in the presence of advanced hepatic damage.

2. There is a better saturation of the arterial blood with oxygen after transfusion. This may be the result of improvement in the general circulation or some change in the character of the blood as a physicochemical system.

3. The functional capacity of hemoglobin may be increased by transfusion. As pointed out, this may involve factors other than the hemoglobin itself, the pH and carbon dioxide content of the blood may be of importance in this respect.

The authors state that the low mortality among their jaundiced patients in the past year reflects the value of the clinical application of these principles. They feel that the decrease in the mortality is attributable to the adequate pre-operative preparation, the selection of the opportune time for surgical treatment, and the postoperative care as previously outlined. In any case they say transfusions of blood have been shown to be of both theoretical and practical value in the control of anorexia and of the tendency to bleed that is associated with advanced hepatic disease.

Bengtson, A. J., Velasco Scares, O. and Rajes, A.: The Content of Direct and Indirect Bilirubin in the Blood Serum. Its Importance to the Physician in Surgery of the Liver and Bile Ducts. (El contenido de las bilirrubinas directas e indirectas en el suero sanguíneo. su importancia en cirugía hepato biliar por los doctores.) *Rev med y cirugía de la facultad de medicina*, 1935 3: 154.

This article reports a study of the amounts of direct and indirect bilirubin in the blood serum of normal persons and persons suffering from disease. There are the two forms of bilirubin that give direct and indirect reactions to the van den Bergh test. The authors describe the technique of their determinations in detail. They found that in health the blood serum contains only indirect bilirubin. This

is brought by the blood capillaries to the cells of the liver trabeculae where it is transformed into direct bilirubin and eliminated through the bile ducts. If there are infarcts or fissures in the cells of the trabeculae direct bilirubin may pass into the blood. If there is functional incapacity on the part of the liver which renders it unable to transform indirect bilirubin into direct bilirubin the blood may contain abnormally large amounts of indirect bilirubin. In the absence of excessive hemolysis, the presence of an abnormally large amount of indirect bilirubin in the blood must be considered a sign of functional insufficiency of the liver. In cases of icterus in which the indirect bilirubin in the blood is not increased there is no insufficiency of the liver. The amount of direct bilirubin that passes into the blood under abnormal conditions depends on the extent of the injury of the trabecular cells. The authors present Fessinger's diagrams showing the bilirubin conditions in normal persons and persons with various forms of icterus.

The cases studied by the authors are reported briefly. They are divided into the following four groups: (1) those in which the serum contained normal amounts of indirect bilirubin and little or no direct bilirubin; (2) those in which the serum contained normal amounts of indirect bilirubin and moderate amounts of direct bilirubin; (3) those in which the serum contained normal amounts of indirect bilirubin and large amounts of direct bilirubin; and (4) those in which the serum contained large amounts of both direct and indirect bilirubin.

Abstracted from *Revista de Medicina* 3: 154

Andrews, E.: Pathological Changes of Diseased Gall Bladders: A New Classification. *Ann Surg* 1935 3: 707.

In an attempt to correlate the current pathological classification of gall-bladder diseases and the clinical and bacteriological findings in these conditions, 116 surgically excised gall bladders were studied. Fifty five were sectioned serially at intervals of 3 cm.

The bacteriological studies led to the conclusion that, in the average case of biliary colic, infection plays only a minor rôle. True ulceration of the mucosa is very rare when the gall bladder is removed without trauma and is fixed before autolysis takes place. Thickening is caused in most cases by edema and takes place almost solely in the submucous layer. In the removed gall bladders, empyema, though diagnosed frequently in the operating room, was never found. Invariably the milky fluid proved to be either an emulsion of calcium carbonate or of amorphous or crystalline cholesterol. The one definite finding was that the degree of inflammation in the wall depended on the patency of the cystic duct. The new classification, which is based on this finding, is as follows:

A. Normal state of the gall bladder
Slight inflammation often seen
presence or absence of stones. (The presence

- of these signs formerly often led to a diagnosis of chronic cholecystitis.)
- B Reaction to acute obstruction of the cystic duct
- Uncomplicated type (formerly called chronic cholecystitis)
 - Infective type (formerly called acute cholecystitis)
 - Empyema (?)
 - Type with vascular damage (formerly acute cholecystitis)
 - Mild cholecystitis
 - Ulcerative cholecystitis
 - Gangrenous cholecystitis
- C Reaction to intermittent obstruction of the cystic duct
- Normal condition between attacks
 - Permanent irritation (usually mild)
- D Reaction to chronic obstruction of cystic duct
- Uncomplicated type (formerly called chronic cholecystitis)
 - Acute infection
 - Mild
 - Empyema (?)
 - Hypops
- E Reaction to obstruction of the common duct
- Acute or recent type (dilated and thin walled gall bladder)
 - Chronic type (shrunken and fibrotic gall bladder)
- F Neoplasms

(JOSEPH A. COLLIER, M.D.)

Saint J. H. The Late Results of Operations on the Biliary Tract in 359 Cases With Cholecystographic Studies In 18. *Brit. J. Surg.*, 1913, 3: 24

Saint investigated the late results of operations on the biliary tract performed at Royal Victoria Infirmary, Newcastle upon Tyne between the years 1907 and 1922. None of the cases had a postoperative history of less than ten years, and as the investigation covered a fifteen year period some of them were followed for as long as twenty five years. Questionnaires were sent to 790 patients and answers were received regarding 359. Three hundred and five of the patients are still alive.

To estimate the relative values of different operative procedures a basis of comparison is necessary. Saint chose as this basis the pathological condition found at the time of operation. In the biliary tract it is difficult to determine the extent of pathological changes exactly because the greater part of the tract is intrahepatic and therefore cannot be examined at operation. Since infection of the gall bladder undoubtedly extends to the intrahepatic portion of the biliary tract, operation does not remove all of diseased tissue present. Intrahepatic infection causes damage to the parenchymal cells of the liver with resulting hepatic inadequacy.

The results of the operations reviewed are classified as (1) complete relief, (2) partial relief, (3) no relief, and (4) those necessitating a secondary operation on the biliary tract.

In both acute and chronic cholecystitis with cholelithiasis, cholecystectomy was followed by better results than cholecystostomy. Excellent results were obtained in cases with and without cholelithiasis in which drainage of the common duct was combined with cholecystectomy or cholecystostomy. Although several patients had 2 or 3 recurrent attacks after the operation they ultimately became entirely well. Carcinoma of the gall bladder did not develop in any case in which only cholecystostomy was done. The percentage of patients requiring a secondary operation was 5 times greater after cholecystostomy than after cholecystectomy. Cholecystographic studies made of 15 patients following cholecystectomy showed full or impairment of gall-bladder function in 61 per cent. A study of the pre-operative history indicated that the patients with the shortest duration of biliary disease obtained the most relief from operation. J. W. GARRER, M.D.

Leinler, I., Solter, S. I., and Hunn, P. The Syndrome of Adenoma of the Pancreas. *Bill. Assoc. J. Clin. Med.*, 1915, 4: 310

The authors report five cases of adenoma of the islands of Langerhans. In all the diagnosis was confirmed by operation. Four of the patients were women. The ages at the time of onset of the condition ranged from twenty two to forty seven years, and the duration of disease up to the time of operation from six months to twelve years.

The clinical picture of adenoma of the islands of Langerhans is a definitely recognizable neuropsychiatric syndrome consisting of (1) disturbances of consciousness, (2) psychic symptoms, (3) superfluous movements, (4) objective neurological clinical signs, and (5) markedly low blood sugar values and dextrose tolerance curves of a plateau type.

The clinical features are attacks of confusion and exhaustion, superfluous movements, and considerable organic mental reaction with fear, irritability, restlessness, variations in the threshold of awareness, changes in behavior and some degree of amnesia for the entire episode. The mental manifestations are of the toxic type, paroxysmal and transitory and associated with other definite symptoms including profuse diaphoresis, weakness, dizziness, and occasional transitory aphasia or paraphasia, diplopia, and headache. Between attacks evidences of mental deterioration may sometimes be noted. The superfluous movements vary from convulsive to tic-like, semi purposeful, and aimless or bizarre manifestations accompanied by clouding of consciousness varying from dreamy states to attacks of unconsciousness.

In the five reported cases the objective neurological signs were as follows: diplopia in three, nystagmus in three, slight obscuration or blurring of the optic papilla in four, inequality of the deep reflexes in three, Babinski and Chaddock signs in two, convulsions or other definitely superfluous movements in four, and transitory aphasia in three. Clouding of consciousness occurred in five of the

cases, and in three it amounted to attacks of unconsciousness.

The symptoms present paroxysmal exacerbations which are characteristically relieved by the intravenous administration of dextrose. In all of the authors' cases the level of the fasting blood sugar showed a marked reduction and dextrose-tolerance tests revealed a curve of the plateau type with a delayed fall. It is to be emphasized that the fasting blood sugar value is not always markedly low. Certain variations may be anticipated and are consistent with the diagnosis of adenoma of the pancreas. A slight to moderate degree of temporary relief following special diets and extra feedings may be noted and, more specifically, a marked temporary improvement following intravenous injections of dextrose. Despite such palliative therapeutic measures the course of the disease continues to be progressive and presents recurrent typical paroxysmal manifestations.

The typical clinical signs are dependent on pathological involvement of the brain. A hypoglycemic state resulting from hyperinsulinism appears obvi-

ous but the exact mechanism responsible for the alteration in brain function and structure remains to be established. In the absence of a gross defect of the liver no other endocrine disease with the possible exception of severe involvement of the adrenal glands is likely to cause difficulty in the differential diagnosis.

Because of the almost exclusively neuroglycopenic manifestations, patients presenting the symptoms characteristic of pancreatic adenomas are very likely to be admitted to neurological and psychiatric hospitals and clinics.

In all of the five cases reported by the authors removal of the tumor was followed by recovery. In four cases a single tumor was found. The neoplasms were well encapsulated, very vascular and from 1 to almost 3 cm in diameter. Their locations varied and bore no relationship to the symptoms. The variation in position, small size, and occasional multiplicity of such neoplasms show the accuracy for careful examination by both inspection and palpation of the entire pancreas at the time of operation.

ARTHUR S. W. TOLSON, M.D.

GYNECOLOGY

UTERUS

Phaneuf, L. E. The Place of Colpectomy in the Treatment of Uterine and Vaginal Prolapse. *Am J Obst & Gynec*, 1935, 30 544

CORRECTION

In the first line of the second paragraph of the abstract of this article on Page 143 of the February, 1936, issue of the INTERNATIONAL ABSTRACT OF SURGERY, there was a typographical error. This line should read:

"Inversion of the vagina following supracervical or total hysterectomy may be easily cured by colpectomy."

McFarland, J. Malignant Myoma. *Am J Cancer*, 1935, 25 530

The author studied fifty-three cases of malignant tumors of unstriated muscular tissue from various regions of the body. In only thirteen was the diagnosis of malignant tumor proved by the discovery of recurrence or metastases at autopsy. In thirty-four, the diagnosis was based entirely on the microscopic appearance of the tumor. As the incidence of malignancy in leiomyomas of the uterus is reported by pathologists at from zero to 10 per cent, it is apparent that opinions differ as to what constitutes malignancy and the accuracy of the diagnosis in these thirty-four cases is rendered doubtful.

McFarland agrees with Cohnheim that uterine leiomyomas arise from residual embryonal cellular material. He discusses the evidence for this theory and the confusion in nomenclature. His studies have led him to conclude that the only proof of malignancy is the occurrence of metastasis.

CHESTER C. GUY, M.D.

Healy, W. P. Experience with Multiple-Dose Roentgen Therapy in Malignant Diseases of the Uterus and Ovaries. *Am J Obst & Gynec*, 1935, 30 613

The author's experience with multiple-dose X-ray therapy for carcinoma of the cervix during the past two and a half years has been encouraging. He states, however, that a satisfactory technique of X-ray dosage and treatment factors remains to be developed. Although he is now giving 300 r daily to two opposite fields, he is not sure that this is the optimum dose and he has not determined the optimum rate of administration. The multiple divided dose method of X-ray therapy cannot be used to advantage for all cases of cervical malignancy. The cases must be chosen with care. Healy believes that by careful selection of the cases many of the patients who now die in the third and fourth

year under current methods of irradiation therapy might be cured. He does not use the method in cases of hopelessly advanced cancer as the mental and financial strain are too great when compared with the brief prolongation of life.

Patients with a heavy pendulous abdomen or who are generally obese are not good subjects for roentgen irradiation. In the cases of such patients the irradiation is apt to result in much damage to the skin and subcutaneous fat leading to localized areas of brawny induration with overlying telangiectases. Such areas are easily injured, and their injury may result in chronic ulceration extremely difficult to heal.

Experience with deep X-ray therapy in multiple doses in the treatment of ovarian tumors indicates that such intraperitoneal metastases or implants are much more irradiation-sensitive than intraperitoneal metastases from uterine tumors.

EDWARD L. CORNELL, M.D.

Jeanneney and Authlé. Fatal Accidents in the Radium Therapy of Uterine Cancers (Les accidents mortels de la curiethérapie des cancers utérins). *Rev franç de gynéc et d'obst*, 1935, 30 677

Although in the treatment of uterine cancer radium irradiation is gradually displacing the radical Wertheim operation with its high primary mortality (8 per cent) even in favorable cases, radium therapy also has a primary mortality. The latter is estimated at 3 per cent by Laborde and at 15 per cent by Begouin and the authors of this article.

Many theories have been advanced to account for deaths occurring soon after radium irradiation, but none of them satisfactorily explains all cases. The authors present a brief analysis of these theories.

The infectious theory is based on the fact that ulcerating carcinomatous lesions contain many organisms. Although radium is said to have a sterilizing effect upon these lesions, it cannot be denied that in some instances the virulence of the organisms is often increased rather than diminished by irradiation. The increase may be due to the rays themselves or to the trauma or stasis resulting from the introduction of the radium container. Under such conditions the clinical picture preceding death is that of pelvic peritonitis with general intoxication.

Cardiovascular symptoms (dyspnea, cyanosis) following radium irradiation, particularly in massive doses, would seem to indicate that radium has an unfavorable effect on the cardiovascular apparatus. While in most instances these symptoms are transitory, in some cases they lead to death. Their cause has been believed to be an acute toxic myocarditis. The myocarditis has been ascribed to the disintegration of tissue proteins (normal tissue, neoplastic tis-

ase, and destroyed leucocytes and erythrocytes). By some such deaths are attributed to shock due to liberation into the blood stream of the products of disintegrating cancer cells (protein shock).

Among other factors held responsible for death are embolism, hypoglycemia (hyperinsulinism), hyperpyrexia (from parainfective stimulation) and endocrine imbalance. The authors are of the opinion that these factors rarely operate separately but are closely associated and occur simultaneously.

To guard against these complications, whatever their cause the authors advise careful examination of patients before irradiation is attempted. They state that infections should be combated by antiseptic irrigations or excision of the infected portions with the electrocautery. For cases of streptococcus infection autogenous vaccines have been advocated. If the temperature rises during the irradiation the treatment should be discontinued at once.

Cardiovascular accidents are guarded against by the administration of cardiac tonics (atropine, digitalis). Patients showing endocrine disturbances are given adrenal. Isotonic saline solution given by hypodermoclysis and hypertonic saline solution given intravenously are of distinct benefit in these conditions.

In the cases of patients predisposed to hypoglycemia a high carbohydrate diet is indicated. If necessary, this may be supplemented by the intravenous administration of glucose.

While radium therapy carries a risk of death from various causes as yet not clearly understood, the authors insist that these factors are present also in surgical treatment and should not be charged specifically to radium. HAROLD C. MACE, M.D.

ADNEXAL AND PERIUTERINE CONDITIONS

Pugh-Hart, V.: Nodose Tubal Lesions. Bilateral Ampullary Adenomyomas of the Endometrial Type Associated with Calcified Fibrous Tuberculous Salpingitis. (A proposito delle formazioni nodose tubariche. Adenomioma ampullare bilaterale tipo endometrioide associato a salpingite tubercolare fibrosa calcifica.) *Arch. di ginec. e ginec.* 1935, 45, 95.

The patient whose case is reported, a woman forty-eight years of age, died so soon after her admission to the hospital that her clinical history could not be obtained.

Autopsy showed the cause of death to have been cerebral hemorrhage. It disclosed, also, old sclerotic and caseous tuberculous of the apices of the lungs and hilar nodes and, in the ampullary portion of both fallopian tubes, which were deformed by an old pelvi-peritoneal inflammatory process and were the site of fibrocalcified tuberculosis, a small hard, well-circumscribed nodule whose histological examination showed to be an adenomyoma.

From a review of the literature and his own studies the author concludes that in the majority of the cases of nodose tubal lesions, especially those which

are intramural or isthmic, the lesions are adenomatous and assume an endometrial appearance through metaplasia of their epithelial components. For this type he prefers the term "salpingic nodosa."

More obscure are true new growths in which there is the possibility of a dysembryoplastic (woflfian or muellerian) post-fetal neoplastic, or migratory origin, especially when they have an appearance similar to that of uterine mucosa. For these lesions the author prefers the term "adenomyoma."

To describe the histological picture more accurately he advises qualifying the term "salpingic nodosa" by the phrase "of the endometrial type" or "of the endometrial type," depending on whether the epithelial component of the lesion resembles more the epithelium of the tube or that of the uterus.

He concludes that the condition in the case he reports was one of malformation of the mucosa of the duct. EUGENE T. LORER, M.D.

Meigs, J. V.: Ovarian Tumors with Endocrine Significance. *Ann. Surg.* 1935, 102, 834.

Meigs states that the increased interest in ovarian tumors is due to the emphasis on hormoneology and that, for the most part, our knowledge is due directly to the researches and writings of Meyer of Berlin who clarified the embryology, pathology and physiology of the arrhenoblastomas, the dermoidomas, the granulosa-cell tumors, and others. As Meyer's observations led to a search of all old microscopic slides in the great pathological laboratories, many unusual and interesting ovarian tumors will probably be reported in the next few years. Such a search has been made by Meigs in the Pathological Laboratory of the Massachusetts General Hospital. Meigs gives a brief review of the histones and physical and pathological findings in five cases of dermoidomas and seven cases of granulosa cell tumors. He presents also a brief description of the interesting characteristics of the now known group of physiological neoplasms of the ovary.

ALBERT M. VOLLARD, M.D.

Stolz, L., and Strassburger, P.: The Problem of Malignant Tumors of the Ovary (Zur Frage der malignen Tumoren des Ovariums). *Rev. suisse med.* 1934, 25, 1579.

Twenty per cent of benign ovarian tumors degenerate into malignant tumors. The authors report on the following ovarian neoplasms which they examined macroscopically and microscopically: (1) a Pflieger epithelioma with tubules of columnar cells resembling germinal epithelial cells; (2) a Krukenberg tumor; (3) a malignant folliculoma with general metastases; (4) a degenerated pseudodermoidoma; (5) a dermoid cystoma with malignant myxomatous degeneration; (6) an atypical cysto-epithelioma of woflfian origin; (7) a hairs cystic vegetating epithelioma; (8) a teratoma with

malignant degeneration of the malpighian cell layer, (9) generalized metastases formed three years after the removal of an ovarian teratoma, (10) a teratoma with malignant degeneration arising from the sweat glands, (11) two malignant papillary cystomas, (12) an ovarian seminoma, and (13) a cystopapillary epithelioma.

In classifying these neoplasms the authors followed the classification of Roussy, Oberling, and Leroux, according to which, malignant ovarian tumors are of the following types and subtypes:

1. Cystopapillary epithelioma
2. Vegetating epithelioma
3. Solid epithelioma (a) glandiform epithelioma, (b) Pflueger epithelioma, (c) follicular epithelioma, and (d) ovarian seminoma

In conclusion the authors emphasize the importance of microscopic examination of excised ovarian tumors which are apparently benign, and of careful determination of the site of origin of the tumor in cases of secondary carcinoma of the ovaries.

(BICKEL) MARTINUS J. SEIFERT, M.D.

EXTERNAL GENITALIA

Joachimovits, R. *The Pathology and Therapy of Vaginal Discharges* (Beobachtungen zur Pathologie und Therapie des Fluor vaginalis) *Wiener Klin. Wchschr.*, 1935, 1: 759.

The author presents first a review of the known factors which govern the acid titer of the vagina, especially, the metabolism of glycogen in the vaginal wall and vaginal contents. On disappearance of the acidifiers, when entering bacilli no longer encounter the high acid milieu of the acidophiles, progressive invasion by other bacteria occurs. If the nutrient medium of the vaginal bacilli is again improved by endogenous factors, self purification of the vagina and disappearance of the invading bacteria take place. In this process an important rôle is played by the peculiarly formed capillary and venous vessels of the vagina.

The occurrence of a vaginal discharge is often due principally to hypofunction of the ovary with disturbance of the normal regulation of the character of secretion. Diseases of the urethra or the vestibule, but above all of the cervix with neutralization processes are frequently the primary basis for the development of a bacillary discharge. Classification according to degree of vaginal cleanliness as suggested by Maunul Heurlin may lead to error as the so called first degree of cleanliness is frequently only seemingly such. Cultural studies frequently demonstrate pseudo-diphtheria bacilli in considerable numbers. According to the author's experience, these bacilli together with the bacillus vaginalis, are present in the vagina in about 20 per cent of cases. Large numbers of leucocytes indicate that cleanliness is only apparently of the first degree. The staining of smears by Dold's method in addition to the necessary Gram staining may be of aid in identification to the practitioner who has no nutrient media

available. The presence of the comma variable which is not infrequently found in pure culture, is always to be considered an indication of diminished ovarian activity. Culturing of this organism, which must not be considered a modified form of the bacillus acidophilus of the vagina, is difficult; the author succeeded in only four cases and then on 2 per cent dextrose-blood agar.

The normal adult vagina is not favorable to the invasion of the gonococcus. In the vaginas of children and pregnant women, climacteric, senile, and inflamed vaginas and the normal vaginas of adults in which the epithelium has been loosened by cervicitis, gonococcal invasion may occur. However, an exact, and possibly cultural, differential diagnosis is necessary.

A clinical characteristic of vaginal discharges due to yeasts and actinomyces (formerly known as streptothrix) is the sudden re-appearance for a short time of a copious thick, discharge after an interval of several weeks during which it had apparently dried up. When only the leptothrix is found in the smear the author uses local treatment only in the initial stage but usually supplements it with general therapeutic measures for strengthening, such as, hormone injections, the administration of calcium, and brine baths.

The trichomonas vaginalis of Donne may occasionally become pathogenic. According to the length of survival of the flagellates as demonstrated by cultural studies, proof of the cure of trichomonas vaginalis requires at least four months.

In the treatment, determination of the hydrogen ion concentration of the vaginal contents is just as important as examination of the vaginal smear. It is best to use the Folin colorimeter with the pH scale of Nøberg.

Involvement of the vaginal wall may also occur in vaginitis in the form of a granular inflammatory colpitis which may be differentiated clinically from the endocrine type of this disease described by Kermauner. The author reports a unique case, that of a Javanese girl who had a dense collection of lymphoid tissue composed of lymph nodes with germinal centers in the vaginal mucosa. He found only one other such case recorded in the literature.

On the basis of histological studies, the author states that with the introduction of dextrose and lactose, especially in conjunction with tannin, a glycogen deposit can be produced in the vaginal wall. However, before or simultaneously with the biological therapy the bacteria accumulated in the vaginal epithelium, sub-epithelium, and deep tissues must be destroyed. Many silver preparations and the caustic douches of Menge have the disadvantage that they coagulate albumin or form silver sulphide. The author considers omnisept to be a good remedy for the various types of discharge and erosions. This is a powder of very fine particles which is insoluble in water and consists of a combination of metallic silver with substances altering permeability. It gives off active oxygen vigorously. For the frequent

very resistant cervical discharge the author recommends ethereal oils (particularly cineol-caryophyllen emulsion) which do not injure the tissues and possess great penetrative powers. In addition to high disinfecting powers, the ethereal oils have the advantage that they diffuse through the cervical mucus and therefore suffer no diminution of their effectiveness.

In cases with disturbances of the sympathetic nervous system, it is often necessary to give calcium by mouth and carbonic-acid plunge baths after the cure of a discharge due to inflammation.

Resistant ulcers of the vagina may sometimes be cured with large doses of ovarian hormone (progy non) (STRASSER) JACOB E. KLEIN M.D.

MISCELLANEOUS

Westman, A. The Hormonal Treatment of Menstrual Disturbances and Its Theoretical Bases (Die hormonele Therapie der Menstruationsstörungen und ihre theoretischen Grundlagen) *Acta obst. et gynec. Scand.* 1935 15 213

This is an anatomical and physiological discussion of the sexual cycle and the regulating influence of the sex hormones. The author takes up (1) the influence on the menstrual cycle of general medical disturbances, (2) constitutional factors, (3) the nervous system, and (4) the various endocrine organs. He discusses functional disturbances of the ovaries and pituitary gland and their diagnosis with the aid of determinations of folliculin and prolactin in the urine.

He then reports the results of experiments carried out to determine the influence of folliculin, corpus luteum hormone, and prolactin on the ovary and pituitary gland.

With regard to the administration of sex hormone preparations he states that in the Upsala Clinic the following preparations have been used: ovex (a folliculin preparation), lutet (a preparation of the corpus luteum hormone), and prolactin.

Of three cases of primary amenorrhea, a favorable result was obtained by treatment with prolactin and folliculin in two.

Of seventeen cases of secondary amenorrhea, three were treated only with prolactin. In these no result was obtained. Of four cases treated with small

doses of ovex given by mouth, a positive result was obtained in one and a negative result in three. Of four cases treated with large doses of ovex given by injection a positive result was obtained in three and a negative result in one. Of five cases treated with prolactin and ovex, a positive result was obtained in two and a negative result in three. The best results were obtained with large doses of folliculin.

Of three cases of juvenile hemorrhage which were treated with large doses of prolactin to provoke involution of the ovary, considerable improvement resulted in one and a favorable result was obtained in the two others.

Of ten cases of climacteric hemorrhage, eight were treated with lutet. In three of these a favorable result was obtained. The two other cases, those of women who were comparatively young, were treated with prolactin. A favorable result was obtained in one.

A number of cases of climacteric disturbances were treated by the oral administration of ovex with a favorable result.

Titus, P. Sterility: Causes and Treatment. *J. Am. M. Ass.* 1935, 109 5 37

Titus outlines the essential details of the routine study of a case of relative sterility and reports the results of an analysis of 113 cases. Of 53 cases in which proper treatment was given, pregnancy occurred in 33 (49 per cent. of 67 cases in which complete study and treatment were carried out). In addition, pregnancy occurred in 5 cases which were studied incompletely.

As sterility is usually due to a multiplicity of factors, a systematic routine of investigation is necessary. This must include both the wife and husband. The authors found that in their series of cases mechanical faults predominated. Obvious endocrine disturbances are less common.

Absolute sterility in the female due to salpingitis or perisalpingitis may often be corrected by a plastic operation. Absolute sterility in the male due to such causes as gonorrheal stricture of the urethra or occlusion of the epididymis can usually be corrected by a comparatively simple plastic operation.

Of 25 cases of absolute sterility reviewed by the author pregnancy resulted in 22.4 per cent.

HARRY W. FINE, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Well, A. M. Triplet Pregnancy (*Grossesse trigémellaire*) *Gynec et obst*, 1935, 32 289

This article is based on eight cases of triplet pregnancy observed at the Tarnier Clinic in the period from 1926 to 1933. During this period the ratio of triplet pregnancies to single pregnancies was 1:3,318. This represents a decidedly higher incidence than has been reported heretofore.

Four of the eight triple pregnancies reviewed were bivitellic, three were trivitellic, and one was univitellic. This agrees substantially with the findings of others that univitellic varieties are in the minority. Five of the eight women gave birth to infants of the same sex—three to only females and two to only males. The three others were delivered, respectively, of one female and two males, two females and one male, and two females and a fetus papraceous. In the preponderance of females these cases differed from cases reported by others in which there was a larger proportion of males. There were no triple placentas, four of the placentas being single and four double. There was some variation in the size and color of the placental masses. The size generally varied with the age of the pregnancy. Each fetus had its own umbilical cord and amniotic sac. In one bivitellic pregnancy the double ovum was mono amniotic.

The age and parity of the mother and maternal syphilis were of little importance. The majority of the mothers were primiparæ or secundiparæ. With two exceptions, they were under thirty years of age. Multiple pregnancies were unknown in the direct or collateral ancestry. None of the mothers had had a previous multiple pregnancy. Only one had had previous antisyphilitic therapy. None was frankly syphilitic.

The pregnancies ran a normal course for the most part. In two instances acute hydramnios necessitated early interruption. In the others, delivery occurred at or near term and spontaneously except in one case in which the use of forceps was necessitated by uterine inertia accompanied by hemorrhage. Cephalic presentation was most frequent and breech presentation nearly as frequent. The puerperium was normal in the majority of the cases. The diagnosis of triplet pregnancy and fetal presentation was facilitated by X-ray examination.

The prognosis of triplet pregnancy for both mother and babies is much better than is generally believed. However, one mother died of shock a few hours after delivery and three of the nineteen viable children succumbed after birth.

The management of the pregnancy and labor does not differ greatly from that of single or twin preg-

nancies. Bed rest is essential during the final months. During labor, conservatism is desirable except for the indications of maternal or fetal distress. Too rapid delivery should be prevented because of the danger of collapse from rapid decompression. To prevent such collapse, the author advises compressing the abdomen during, and for some time after, delivery. The chief danger during and immediately after delivery is hemorrhage from the uterine atony which follows prolonged distention of the uterus.

HAROLD C. MACK, M.D.

Meylan, R., and Mossadegh, R. The Diagnosis of Ectopic Pregnancy (*A propos du diagnostic des grossesses ectopiques*) *Gynec et obst*, 1935, 32 321

Ectopic pregnancy is apparently becoming more frequent, but in spite of present-day increased experience with the condition, diagnostic difficulties are still as great as ever, at least in the early stages. According to Labhardt, 18 per cent of cases hospitalized in Basel during the past quarter century were diagnosed incorrectly. In order to determine, if possible, what can be done to increase the accuracy of diagnosis, the authors studied signs, symptoms, and laboratory tests which may be of aid to the clinician in the early stages of the condition when the difficulty of diagnosis is greatest. The classical picture of tubal rupture or abortion with intra-abdominal hemorrhage usually presents no difficulties.

This study is based on an analysis of 130 cases operated upon at the Geneva Maternity Hospital during the years from 1929 to 1934. 82 of tubal rupture and 48 of tubal abortion. The right tube was involved in 67 and the left tube in 63. The total mortality was 8.4 per cent, of which 3.8 per cent was attributed to the operation.

The symptoms presented in these cases were the following:

1. Anomalies of menstruation. These occurred in 93.7 per cent of the cases. In 80.7 per cent there was metrorrhagia.

2. Cul-de sac tenderness. Tenderness in the cul-de sac was found in 81.8 per cent of the cases. It was often the only sign which could be discovered on examination. The pain due to the presence of blood in the pouch of Douglas is more intense than that elicited by palpation of the affected tube. This fact serves to differentiate ectopic pregnancy from adenitis. In appendicitis, cul-de sac tenderness is limited to the right side. Ectopic pregnancy is characterized also by absence of the fever and marked abdominal muscle spasm which are usually present in other pelvic and abdominal inflammations.

3. Juxta-uterine tumor. A juxta-uterine tumor was present in 77.7 per cent of the cases. Such a

tumor is often difficult to distinguish because of pain in the cul-de-sac. The tumor is soft and relatively non-sensitive. It is situated to either side of a soft, enlarged fundus which does not correspond to the size expected for the same stage of normal pregnancy.

4. Signs of anemia. Signs of anemia were present in 39.8 per cent of the cases. Massive internal hemorrhage and associated peritoneal shock produce a picture of acute anemia not easily overlooked. Minor blood losses in ectopic pregnancy cause less definite signs of anemia (faltering of the blood pressure, vertigo, tachycardia, and occasionally brady cardia) which are equally important.

5. Shoulder pain (sign of Lefort). This sign was present in 45.6 per cent of the cases. It is due to phrenic nerve irritation by blood collecting beneath the diaphragm. It may be felt in the arm, shoulder or neck. In 48 of the cases reviewed it was present on the same side as the abdominal pain or in both shoulders. It occurs most often on the right side.

6. Rectal pain. Rectal pain was present in 32 of the reviewed cases. It is an infrequent symptom resulting from peritoneal irritation by blood or pus. It is felt most frequently after defecation and is associated with a sense of weight and a desire to defecate.

7. Bladder symptoms. Twenty-eight of the patients had urinary symptoms which were more or less severe. These relatively infrequent symptoms are due to peritoneal irritation. The most common is dysuria.

Other chancel signs, such as blue discoloration of the umbilicus, pain on manipulation of the uterus, and vascular pulsations at the inferior pole of the adnexal tumor are dismissed by the authors as being of little diagnostic aid. Cul-de-sac puncture is a simple and valuable procedure but is not without danger as it may re-activate arrested hemorrhage.

Among the most important laboratory procedures which are helpful in the diagnosis of ectopic pregnancy the authors emphasize the Aschheim-Zondek reaction. However they state that this test requires careful chemical interpretation. A positive reaction may be due to an intra-uterine pregnancy, and a negative reaction does not exclude the possibility of an ectopic pregnancy with a dead ovum.

The blood sedimentation rate is generally accelerated (ranging from normal to forty-five minutes). The leucocyte count increases in proportion to the amount of blood lost. The temperature usually remains normal or only slightly elevated except when secondary infection supervenes.

HAROLD C. MACK, M.D.

Ahlroep, G.: Disturbances Experienced by Pregnant Women When in the Dorsal Position (Über Reaktionenbeschwerden bei Gravidia). *Acta obst. et gynec. Scand.* 935, 15, 495.

In the case of a previously healthy woman in the latter half of her first pregnancy, marked increase in the pulse rate, a considerable reduction of the

blood pressure and pulse tension, and retardation of respiration occurred when the patient lay on her back. Roentgen examination revealed reduction of the heart volume. The woman complained of discomfort and tension in the upper part of the abdomen and difficulty in breathing. A series of examinations demonstrated that these phenomena appeared only when the pregnant uterus rested against the right posterior part of the peritoneum.

An investigation of the effect of pregnancy on the circulatory apparatus showed that during particularly the last part of pregnancy there is an increased disposition to the development of circulatory disturbances. In experiments on animals reported in the literature compression of the inferior vena cava was found to cause a reduction of the blood pressure and an increase in the pulse rate.

The symptoms in the case reported in this article and also in a case reported previously may be explained by compression of the vena cava by the pregnant uterus with possible stasis and spread displacement of the diaphragm.

The author investigated the symptoms commonly present in the dorsal position and the spontaneous changes in the sleeping position during the latter half of pregnancy. Of 653 women, 107 (30 per cent) stated that they noted tenderness, fatigue, or pain in the abdomen or back, stronger movements of the fetus, and palpitation when lying on the back. Forty-two (64 per cent) were unable to be on the back. In the cases of more than one third the sleeping position was changed in the latter part of pregnancy.

In practically all of another series of 180 pregnant women the symptoms disappeared completely with parturition.

There is consequently a striking parallelism between these fairly common feelings of discomfort and the grave symptoms exhibited by the author's patient. Ahlroep concludes that the common symptoms experienced by pregnant women when reclining on the back are probably caused by more or less complete compression of the vena cava by the pregnant uterus, possibly in association with upward pressure on the diaphragm.

Hendley, J. B., Whitson, H. J., Hibbels, J. T., Magal, I. A., and Bruck, C. R.: Physiological Changes Occurring in the Urinary Tract During Pregnancy. *Am. J. Obst. & Gynec.* 935, 9, 475.

The most constant changes in the urinary system during pregnancy are dilatation of the pelvis and calyces of one or both kidneys, dilatation, tortuosity and kinking of one or both ureters and lateral displacement of these structures. The right kidney and ureter are affected more often than the left, but the left ureter is displaced laterally more frequently than the right. In roentgenograms studied by the authors the portion of the ureter which runs over the pelvic wall was not visualized whereas the pelvic ureter was often well outlined. Following pregnancy there is a return of the urinary system to normal.

Of twenty-six women examined after delivery, eighteen showed a return to normal in twenty-eight days. One required fifty-six days.

In the cases of thirteen women, all except two of whom died at term, the authors studied the urinary tract histologically. In all but one case some dilatation of the ureter was found. The right ureter was constantly more dilated than the left. Gross examination showed that the dilatation always began above the brim of the pelvis. The lower end of the pelvic ureter was quite firm and rigid, whereas the abdominal spindle was always flaccid and ribbon-like and showed a definite loss of tone. No evidence of stricture formation was demonstrated on either macroscopic or microscopic examination. Hypertrophy of the musculature, edema, and increased vascularity in the urinary tract were constant findings. The most striking change in the urinary system was the marked hypertrophy of the ureteral sheath of Waldeyer.

The cause of ureteral dilation is two-fold. The primary changes in the ureter are hormonal in action, and the pressure of the uterus causes a constriction at the pelvic brim.

The authors have found that definite regression of dilatation of the renal pelvis and the ureter occurring during pregnancy is brought about by the use of an indwelling catheter. The continuous drainage must be maintained for at least forty-eight hours before a decrease in capacity is noted. Even with continuous drainage, the decrease in the dilatation cannot be expected to be very rapid as the ureter is still atonic and soft because of the continuous action of estrin.

EDWARD L. CORNELL, M.D.

Thomas, W. A., Allen, E. D., Bauer, C. P., and Freeland, M. R. *The Toxemias of Late Pregnancy*. *Am J Obst & Gynec*, 1935, 30, 665.

All patients, including private patients and patients in the prenatal clinics, who exhibited any deviation from normal such as hypertension, albuminuria, headache, visual disturbances, or edema, were hospitalized and subjected to intensive study, the studies being repeated as frequently as the condition warranted.

This investigation demonstrated that no test or group of tests accurately represents the complete picture of toxemia of pregnancy, and that clinical experience and judgment must not be relegated to a position secondary to an arbitrary set of standards.

After completion of the tests the authors' patients are put on a salt-free diet. During pregnancy there is an invisible edema which is aggravated by the sodium ion. From 2 to 3 gm. of potassium chloride are given daily on the tray to be used as salt. In many instances this definitely decreases the edema. If there is an excessive loss of protein in the urine, additional protein is given. Fluids are given freely, even in the presence of edema.

Magnesium sulphate in 10 per cent solution administered intravenously is very effective in reducing a high blood pressure. Glucose in 6 to 10 per cent

solution given intravenously or by multiple needles subcutaneously is of value in hypoglycemia and anuria. Hypertonic glucose is valuable in edema of the brain accompanying convulsions in eclampsia. Calcium lactate by mouth and calcium gluconate or levulinate given intravenously protect against liver damage and, by replacing sodium from tissues, promote diuresis. Venesection should be avoided.

Shock, one of the manifestations of toxemia occurring usually just after delivery, but occasionally before delivery, is due to rapid loss of blood volume, not from hemorrhage, but from removal of free blood water by the tissues. The primary need is a fluid that will remain in the circulation. Salt and glucose are lost almost as rapidly as they are given. Transfused blood and acacia solution are the two fluids which meet the requirements. The improvement occurring during the administration of acacia solution is frequently very striking.

EDWARD L. CORNELL, M.D.

Baird, D. *The Upper Urinary Tract in Pregnancy and the Puerperium, with Special Reference to Pyelitis of Pregnancy*. *J Obst & Gynec Brit Emp*, 1935, 42, 577.

The ureter in its lumbar and iliac portions lies in contact with the aponeurosis of the psoas muscle about one fingerbreadth from the spine. In front it is in intimate contact with the posterior peritoneum. It has a wide range of mobility in its abdominal portion, a fact to be borne in mind when considering the changes occurring in pregnancy.

At the pelvic brim the ureters cross the iliac vessels obliquely where the common iliac artery divides into the internal and external divisions. At this point there is a difference in the two sides due to the difference in the course of the common iliac vessels. The right common iliac vessels cross the vertebral column from left to right and therefore lie more anteriorly than the left. As the right ureter must cross over the right common iliac vessels almost at a right angle to gain the pelvis, it has a more exposed course than the left, which is partly protected by the promontory of the sacrum, and the sigmoid colon and its mesentery which lie anterior to it.

As early as 1869 Engelmann described in detail the nature of peristaltic contraction in the ureter. He observed that the contractions normally originate in the renal pelvis and proceed toward the bladder, that the contractions are independent of intrinsic or extrinsic nerves, and that the impulse to contract is conveyed directly from one muscle fiber to another. Later workers have found that the greater the pressure of fluid passing through the lumen of the ureter the more frequent and vigorous the peristaltic waves become. A practical application of this finding is the treatment of stasis and infection in the urinary tract with abundant fluids. There has also been brought forward evidence that the salt content of the urine will cause local reflex stimulation of the ureteral musculature and that stimulation of the splanchnic nerve will cause in-

creased ureteral peristalsis, whereas section of this nerve will inhibit peristalsis.

Working with dogs, Bariksdale (1930) found that reflux along the ureters from the bladder is more common during pregnancy than in the non-pregnant state.

Wallock and O'Connor (1930) studied the effect of partial and complete obstruction of the ureter in animals. After partial ligation the lumen increases in diameter and the muscle hypertrophies above the obstruction. Peristaltic waves are more frequent and more vigorous than in the normal ureter. The ureter below the obstruction exhibits normal spontaneous peristaltic contractions. In complete obstruction there is seldom any spontaneous peristalsis and the ureter does not react to stimuli. However, when part of the contained fluid is released, violent peristaltic and antiperistaltic movements begin.

The results of partial obstruction in the ureters of dogs described by Smith and Ockerblad are of the greatest importance as the deformities produced in the ureter are similar to those occurring in the right ureter in women in the second half of pregnancy. This is strong evidence in favor of the view that partial obstruction to outflow occurs in the human ureter at the level of the pelvic brim in the second half of pregnancy. In pregnant women no hypertrophy of the ureteral musculature occurs above the point of obstruction, suggesting that some other factor prevents this physiological response to obstruction. This explains why such marked degrees of dilatation occur so quickly as the result of the relatively moderate pressure which can be exerted by the pregnant uterus.

According to Jona (1931) Herbst (1931) and Graber (1930) petuinism causes contraction of the renal pelvis and ureter. According to Graber the lower third is much more affected than the rest. These authors state that epinephrine causes a similar contraction of the pelvis and ureter. Adrenalin causes contraction of the renal pelvis long after the blood pressure has reached its maximum. Herbst states that morphine also stimulates ureteral contractions. Atropine causes relaxation.

The investigation of the urinary tract in gynecological conditions has been undertaken to compare the effect on the urinary tract of the presence of the gravid uterus in pregnant women with that of gynecological tumors of similar size in non-pregnant women. It is common knowledge that gynecological tumors, both inflammatory and neoplastic, are frequently associated with urinary symptoms, usually disturbances of micturition due to displacement of or pressure on the bladder, but it is not generally recognized that dilatation of the upper urinary tract may also occur in those cases. However it is well known that in cases of advanced carcinoma of the cervix, the ureters may be compressed in the para-aortic or at the pelvic brim by the carcinomatous tissue and complete suppression of urine, due to blockage of both ureters, is one of the recognized causes of death.

Pelvic cellulitis. Of eleven cases of pelvic cellulitis in which a urological examination was made, excretion was not delayed in three of salpingo-oophoritis with very slight cellulitis. In eight cases, cellulitis was extensive and there was a delay of excretion which was more marked on the left side in five and more marked on the right side in three.

Ovarian cyst. Only one of the eleven cases of ovarian cyst had no delay in excretion. This was the case of a para-R with a moderately sized soft cyst which floated about freely in the abdomen. When the cyst is adherent to the tissues in the neighborhood of the pelvic brim, dilatation and stasis are always found. The most marked example of this was a malignant ovarian cyst of moderate size adherent to the pelvic brim at the left side.

Simple cysts which are not adherent may cause dilatation and stasis in the upper urinary tract. It is possible that a disorder of the endocrine balance lowered the tone of the ureteral musculature so that it was more susceptible to pressure. This is probably what occurs during pregnancy.

In the cases in which the cyst fills the pelvis and reaches to the level of the umbilicus (i.e. approximately the size of a five months' pregnancy) the ureter on the side most affected by the cyst can be demonstrated clearly by intravenous pyelography down to the pelvic brim, showing that the point of compression is at the pelvic brim. When the cyst is so large as to fill the abdomen completely up to the costal margin the compression is not at a single point but the ureter is flattened against the psoas muscle for some distance above the pelvic brim. The same thing is found during pregnancy. In the fifth month the ureters are dilated and show clearly down to the level of the pelvic brim. Near full term one of two things will have happened: either compression of the ureter for some distance above the pelvic brim, or lateral displacement of the ureter so that it escapes the point where it crosses the pelvic brim. The significant resemblance between the effects on the ureter due to the presence of an ovarian cyst and of a pregnant uterus suggest clearly that mechanical pressure is an important factor in the production of the changes occurring in the urinary tract in pregnancy. Lee and Mengert (1931) argue that the dilatation caused by pregnancy disappears too quickly in the puerperium for the cause to be mechanical pressure, and conclude that a disturbance of hormones peculiar to pregnancy is the important factor, but the author has found that the dilatation of the urinary tract caused by ovarian cysts in the non-pregnant disappears very quickly after removal of the cyst. Further after pregnancy the disappearance of the dilatation is often delayed, and the finding of Lee and Mengert to the contrary is due to their reliance on intravenous pyelography to demonstrate the contour of the urinary tract. While this method is admirable during pregnancy the lack of obstruction to outflow makes it quite unreliable in the puerperium when recourse to retrograde pyelography is necessary.

When the cyst presses equally on both ureters, the right ureter is more dilated than the left. The preponderance of dilatation of the right urinary tract in pregnancy is probably due to the same cause.

Fibromyoma It has been possible to perform urological examination in only five cases of fibromyoma large enough to be comparable as regards size with the pregnant uterus in the second half of pregnancy. Delay in excretion was not observed in any case and when the abdomen was opened it was seen that there was no direct pressure on the ureters as the firm consistency of the tumor prevented it from fitting closely into the irregularities of the pelvic brim. This is additional evidence of the obstruction in pregnancy occurring at the pelvic brim.

Baird says that in his survey of twenty-eight cases of pelvic cellulitis, ovarian cyst and fibromyoma, he demonstrated conclusively that tumors of sufficient size and soft consistency can compress the ureter and cause dilatation and interference with renal function. If the cyst is situated to one side it causes dilatation of the urinary tract on the same side and less or no dilatation on the other side. When the cyst fills the abdomen uniformly and appears to exert pressure equally on both sides, the right urinary tract is dilated more than the left. This confirms the view that the right urinary tract is more exposed to pressure than the left. As a rule, the dilatation produced in these cases is less than that produced in a pregnancy of corresponding size, and the consequent stasis is very markedly less because the tone of the ureter, as judged by the vigor of the efflux, is not impaired in the non-pregnant state to the same extent as in the pregnant state. It has been said in support of the statement that ovarian cysts do not cause dilatation of the urinary tract, that pyelitis is never seen in these cases, but as the incidence of clinical pyelitis, even in pregnancy, is only 1 per cent, much larger numbers would have to be studied before definite conclusions could be reached. Moreover, as in the absence of pregnancy the stasis is never so great as in the presence of pregnancy, the liability to infection cannot be so great.

STANLEY C. HALL, M.D.

Baird, D. The Upper Urinary Tract in Pregnancy, with Special Reference to Pyelitis of Pregnancy. III. Changes in the Upper Urinary Tract in Pregnancy and the Puerperium. *J. Obst. & Gynec. Brit. Emp.*, 1935, 42, 733.

Dilatation of the upper urinary tract occurs in nearly every pregnant woman. It is usually more marked on the right side than on the left and affects the calyces, renal pelvis, and ureter down to the level of the pelvic brim, where the ureter narrows suddenly. In its pelvic portion the right ureter is undilated. On the left side the calyces and renal pelvis are less frequently involved. The dilatation affects the ureter usually throughout its whole course, as a rule tapering gradually to the bladder, but in some cases narrowing abruptly at the pelvic brim.

On both sides kinks are usually seen, but on the right side they are much more pronounced than on the left side and may be very acute. They are usually situated at the junction of the renal pelvis and ureter and cause definite narrowing of the lumen.

Lateral displacement of both ureters to the outer border of the psoas muscle is frequent in the second half of pregnancy. When this occurs the ureter escapes compression until it crosses the psoas muscle at the level of the pelvic brim to gain access to the pelvis. When no lateral displacement occurs, the ureter lying along the psoas muscle is compressed for the greater part of its course, above the brim of the pelvis. If the abdomen is pendulous—in primigravidae because of a contracted pelvis or spinal deformity and in multiparæ because of a lax abdominal wall—the point of compression is usually low, at the pelvic brim, but when the abdominal muscles are firm and the ureter is not displaced laterally, the ureter is flattened in its abdominal portion to a much higher level. Dilatation of the upper urinary tract is more marked in primigravidae than in multiparæ. Dilatation is found as early as the tenth week and at this stage is uniform throughout both ureters, involving the pelvic as well as the abdominal portions. It may be more marked on the right side even at this early stage. At the end of the fourth month it is increased by the pressure of the pregnant uterus, especially on the right side. Up to the sixth month it increases. From then until term it decreases on the left side. On the right side the calyces, renal pelvis, and ureter down to the pelvic brim may dilate further or may become smaller. More commonly the calyces and renal pelvis increase in size and the size of the ureter diminishes.

In conjunction with dilatation, stasis is usually found, although dilatation can exist without stasis and stasis may be present with very little dilatation. Stasis begins early in pregnancy, reaches its maximum as a rule at the sixth month, and diminishes near term. At the sixth month, although there is a marked disturbance of ureteral function, renal function may be better than later when the function of the ureter has improved since, because of the increased pressure of the uterus and the improved tone of the ureter, the intra-ureteral pressure rises and affects the function of the kidney adversely.

As the effect on the left kidney is almost negligible, symptoms of renal deficiency seldom develop during pregnancy. In 15 per cent of cases pain referable to the urinary tract occurs because of disturbance of ureteral peristalsis.

Histological examination of the wall of the ureter above the point of compression has shown that no hypertrophy occurs in response to the obstruction but, on account of the atony, the ureter simply stretches. Because of the increasing pressure of the uterus, dilatation and stasis would be progressive until the end of pregnancy if some other factor did not come into play. The tone of the ureter improves near term, but diminishes rapidly in the puerperium especially in cases in which the dilatation and

stretching reach a high degree. When the dilatation is only slight during pregnancy the falling off in tone in the puerperium is much less. This suggests very strongly that the improvement in the cases with marked dilatation is due to a stimulus which is suddenly withdrawn after labor. The uterine subsequently regain their tone slowly in proportion to the rate of disappearance of the dilatation. In some cases in which dilatation has been very great, the right urinary tract never returns to normal and the tone remains less than that of the left urinary tract which has been relatively unaffected.

It is now established that estrin sensitizes the uterine muscle to the action of pituitrin and that the estrin content of the blood rises as pregnancy advances, reaches its maximum just before term, and rapidly diminishes in the puerperium. It is possible that the variations in the estrin content of the blood during pregnancy and the puerperium influence the tone of the urinary tract in the same way as they affect the tone of the uterus.

It is claimed that in cases of albuminuric toxemia there is an excess of posterior pituitary hormone in the circulation (Asselmino, Hoffmann, and Kennedy). The fact that in this condition there is very little atony of the uterus suggests that the posterior pituitary hormone also plays a part.

ALBERT W. HOLMAN, M.D.

LABOR AND ITS COMPLICATIONS

Bogdanovitch, M.: Hemorrhages During Labor (Geburtsblutungen). *Reichs Anz. u. Grenz. C. Grenz.* 1935 14 136

The author first reports on hemorrhages associated with miscarriages which were treated at the Gynecological Clinic of Belgrade during the period from 1923 to 1934. In the treatment of hemorrhage with febrile abortion he is conservative, giving active treatment only when the bleeding threatens life. In cases of hemorrhage with afebrile or subfebrile abortion occurring before the third month, active measures were taken only when no tenderness or inflammatory reaction of the surrounding region was present. Of 2,557 cases in which curettage was done, fewer without a fatal termination occurred after the operation in only 5. In abortions occurring after the third month the treatment was extremely conservative even in the absence of fever and complications. Of 335 women delivered after the third month, only 5 were febrile during the puerperium and none died. Of 140 women who were admitted to the Clinic with fever 35.3 per cent died.

In 16 cases hydatid mole was the cause of the hemorrhage. Two patients with a destructive mole died of peritonitis. Fourteen patients were normal. In these cases the uterus was emptied with the dull curette only when the hemorrhage threatened life. In 1 case a supravaginal amputation was performed.

In 414 cases internal hemorrhage occurred and ectopic pregnancy was suspected. In 411 cases the suspicion was confirmed. Four hundred and eight

women with ectopic pregnancy were subjected to laparotomy. Three cases of suppurative were treated by posterior colpotomy. In 3 cases there was internal hemorrhage from other causes: corpus-luteal hemorrhage, hematoma of the ovary and hemorrhage from the left uterine horn where a chorionepithelioma had developed. In 30 cases of ectopic pregnancy blood transfusion was performed. Of 40 patients, 19 (46 per cent) died—8 of hemorrhage, 6 of peritonitis and 5 of peritonitis.

Among 7,213 births, hemorrhage occurred 31 times because of placenta previa. The placenta previa was central in 18 cases, marginal in 12 and lateral in 1. In 18 cases Buxton-Jacks version was performed in 12, intra-ovular uterine dilatation, and in 5 cesarean section. Three (8.3 per cent) of the patients died: 2 with central insertion of the placenta died of hemorrhage. One patient who was admitted to the clinic with a high temperature and marginal placenta previa was delivered with forceps and died as the result of sepsis. The child survived.

There were 193 cases of hemorrhage due to retention of the placenta. In 96, the Credé method was used, and in 98 the placenta or the retained membranes were removed by manual extraction. Seventy-nine patients were afebrile, 15 were subfebrile, and 4, of which 1 died, were septic. Therefore manual extraction is not so dangerous as was formerly believed, and retention of the most minute placental rest is much more dangerous than this active treatment.

In 3 per cent of the total number of deliveries atonic secondary hemorrhage occurred. The author observed severe hemorrhages following hydatidiosis and twin births. Uterine tamponade was carried out 8 times. One case ended fatally from heart failure in spite of compression of the aorta and blood transfusion. In all of the other cases massage of the uterus and the intravenous or intramuscular administration of extract of the posterior lobe of the pituitary gland were sufficient.

There were 3 cases of hemorrhage due to inversion of the uterus. In 1 the inversion was reduced and in the other the uterus was amputated. Hemorrhage from wounds of the soft parts of the birth canal occurred in 11.5 per cent of the cases. It was most common after forceps delivery and too rapid extraction of the aftercoming head in breech presentations. In 9 cases the hemorrhage was due to a tear of the cervix and stopped when the tear was sutured. Eight patients with spontaneous rupture of the uterus during labor were treated by supravaginal amputation. Two of them died. One patient with traumatic rupture was treated conservatively as the condition was not diagnosed immediately and re-covered (Barjaktarovitch). Of 5 patients with internal hemorrhage from perforation of the uterus caused by an attempt at criminal abortion, only 1 could be saved by hysterectomy. The 4 others, 3 of whom had suffered severe injuries of the intestinal tract, died of peritonitis.

HARRY A. SALZMANN, M.D.
(JANINE RUCOVICH)

NEWBORN

Kovács, F. and Dapsy, L. The Fate of Premature Infants Following Birth (Ueber das Schicksal der Frühgeborenen nach der Geburt) *Orvosi Hetil.*, 1935, pp 551, 552

Of the 13,076 infants delivered at the University Obstetrical Clinic of Kovács at Debreczen, Hungary in the period of fourteen years from 1921 to 1934, 1,090 (8.4 per cent) were born prematurely. The definition of premature infants given in the literature varies. The authors, using the Hungarian laws as a basis, have accepted a body weight of from 1,500 to 2,500 gm and a body length of from 35 to 48 cm as the criterion of premature birth.

Thirty-two and five tenths per cent of the premature infants were stillborn. Of those born alive, 28.4 per cent died during the first ten days of life in spite of proper clinical nursing and nutrition. Of those discharged from the Clinic in good condition, 10 per cent died at home during the first year of life, apparently because of subsequent insufficient care. By means of questionnaires (which were answered by 242 mothers), the authors found that of the premature infants discharged from the Clinic alive, only 56.5 per cent were still alive after ten years. By means of tabulated and graphically presented detailed statistics they show that, in general, prematurely born children require four years of development to overcome the frailty resulting from premature birth and to attain the resistance of children of similar age who were born at term.

A comparison of the mortality of premature children during the first ten days of life in the hospital (24.3 per cent) and outside of the hospital (84.5 per cent) and of the percentage of premature children born alive in the hospital (38.7 per cent) and in private homes (23.4 per cent) demonstrates that every case of premature birth, even if free from complications, belongs in a hospital.

While the mortality of premature infants during the first ten days of life averaged 36 per cent in the years from 1921 to 1930, it decreased to an average of 20.8 per cent in the years from 1931 to 1934. One reason for the decrease was the fact that in the last few years the care of the newborn at the Clinic is entrusted, not to the midwives, but to specially trained pediatric nurses. Another is that the newborn are kept in a separate nursery where they are protected from droplet infection from visitors. In

the last two years the administration of sex hormones in 164 cases to assure and increase the vitality of premature infants has given good results.

Since infant mortality is considerably influenced by the deaths of premature infants, special attention should be given to the study of the causes of premature births. The authors emphasize the difficulty of deciding subsequently whether an abnormality was the cause of the premature birth or the premature birth was the result of an accidental concurrence of etiologically unrelated complications. In the 1,000 premature births occurring during the fourteen-year period reviewed the authors found the following causes:

- 1 Maternal diseases: toxemia of pregnancy (22.9 per cent), lues (12.3 per cent), tuberculosis (3.1 per cent), other infectious diseases (1.5 per cent), circulatory disturbances (1.9 per cent), developmental disturbances of the genitalia (1.2 per cent), generalized debility (0.2 per cent), endocrine disturbances (0.2 per cent), ileus (0.2 per cent), tumors of the genitalia (0.1 per cent).

- 2 Conditions of the fetus and the secundines: twin pregnancy, and hydramnion (6.1 per cent), placenta previa (5.1 per cent), premature separation of the placenta (1.3 per cent), developmental disturbances (0.6 per cent).

- 3 Abnormal position of the fetus: breech position (4.5 per cent), transverse position (1.1 per cent).

- 4 Unrecognized causes (37.4 per cent). In this group the authors have subdivided the traumatic causes. Next to criminal manipulations, they ascribe special importance to the practice of sexual intercourse during the last months of pregnancy. The importance of the latter was evidenced by the fact that in 40 per cent of the cases of premature births the women presented themselves with prematurely ruptured membranes.

The authors could not determine any relationship between the economic condition, social status, or employment of the mother on the one hand and the frequency of premature delivery on the other. Fifty-four and four-tenths per cent of the premature infants were legitimate children.

As statistics and experience show that premature infants are capable of eugenically complete later development, special attention should be given to their protection by the provision of special quarters for them in nursing homes.

(STEFHAN SOMMER) HARRY A. SALZMANN, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Soell, A. M.: The Present Status of the Diagnosis and Treatment of Addison's Disease. *Med Clin North Am* 1935, 19 383

It is now known that Addison's disease presents two characteristic sets of symptoms and signs: those of the stage of chronicity and those of crisis. The principal symptoms of the former are slight asthenia, hypotension, pigmentation of the skin, and occasionally phenomena related to hypoglycemia. They may persist for long periods before the more serious nature of the disease becomes apparent. The more serious symptoms of the disease are those of crisis which are intimately related to the destruction of the cortex of the gland and loss of the cortical hormone. They may develop at any time in latent cases or *per se* pass with the pigmentation and asthenia. Often they appear without warning, but more frequently the initial symptoms develop gradually. The most common are anorexia, nausea, vomiting, diarrhea, and circulatory collapse. The development of these symptoms is attended by fairly characteristic chemical changes in the body. The episodes of so-called crisis are attended by loss from the body of sodium with an equivalent loss of chloride and bicarbonate ions and their probable complement of body water. There is usually an associated accumulation of nitrogenous waste in the blood, the blood urea, non protein nitrogen, and serum sulphates rising rapidly. The serum potassium is also increased, often out of proportion to the degree of concentration of the blood. The total base and the carbon-dioxide combining power of the blood are reduced, chiefly because of the loss of sodium ions. These findings, which were emphasized first by Loeb and later by Harrop and his collaborators, are of great significance, and a thorough appreciation of their importance is essential to adequate treatment.

The diagnosis of the disease especially during periods of latency depends almost entirely on the demonstration of pigmentation of the skin. The color of the skin is most frequently a dirty grayish-brown. The discoloration is most pronounced on the exposed surfaces of the body. The pigmentation is diffuse but pressure points, scars, and bony prominences are definitely darker than the surrounding areas of skin. Minute black freckles are often noted, especially on the neck and shoulders. The genitalia, anus, axilla, nipples, and lips may be strikingly discolored, even in the absence of conspicuous general pigmentation. On the oral mucous membranes, especially the buccal surfaces, tongue, and gums are brownish or purplish patches which are very typical. The hands often have a negroid appearance. The palm is distinctly lighter than the dorsum, and a

well-marked line of demarcation is noticeable. The lines of the palms may stand out because of the deposits of pigment in these areas. Occasionally the pigmentation may be confused with that of hemochromatosis, acanthosis nigricans, arsenical poisoning, and vagabond's disease. Biopsy of the skin with the use of appropriate stains for iron and arsenic usually serve to rule out these other conditions.

The demonstration of tuberculous changes in the body is of considerable importance both from the standpoint of diagnosis and that of treatment. The association of pigmentation of the skin with demonstrable tuberculous lesions anywhere in the body or even with conclusive evidence of a previous tuberculous lesion is of considerable significance in the diagnosis. With the use of the roentgenological techniques developed by Camp and his associates, it is possible to demonstrate calcification in approximately 25 per cent of cases of Addison's disease. The presence of definite suprarenal calcification is practically pathognomonic of Addison's disease.

By withdrawing salt from the diet of patients who have latent Addison's disease, it usually is possible to produce symptoms of crisis and characteristic changes in the chloride and nitrogenous components of the blood. In normal individuals with intact suprarenal glands deprivation of salt causes no clinical symptoms and only minor changes in the chemical character of the blood, whereas persons with Addison's disease it usually produces striking changes in the general condition and the chemical components of the blood. This provocative test should never be employed unless the patient is under close observation in a hospital with every facility for emergency treatment at hand as dangerous collapse may be precipitated and extraordinary measures may be required to prevent a fatal termination.

Usually a positive diagnosis of Addison's disease cannot be made with certainty in the absence of typical pigmentation unless it is possible to demonstrate calcification in a suprarenal gland or provoke the clinical and chemical phenomena of crisis by withdrawing salt from the diet.

Also of special importance in the diagnosis is early recognition of the signs of suprarenal insufficiency. Anorexia, nausea, vomiting, and increasing asthenia are among the earlier phenomena associated with this condition, and patients who present such symptoms may pass into a state of shock within a few hours. Marked nervous disturbances such as restlessness, delirium, coma, and meningismus may be noted. There is often marked hyperthermia during such episodes. These crises are precipitated by exposure, exertion, catharsis, surgical procedures, or any condition which makes unusual demands on the affected individual. Fortunately the early stages

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of crisis are usually attended by a fall in the concentration of the blood chlorides, a rise in the urea nitrogen of the blood, and the other chemical phenomena of crisis mentioned.

There are, of course, two obvious indications in the treatment of Addison's disease. The first is to maintain an adequate supply of sodium salts, and fluids, and the second, to supply the missing cortical hormone. The importance of an adequate intake of sodium salts in the treatment of Addison's disease can hardly be overestimated. The daily basic requirements are from 6 to 12 gm. The salts can be administered in gelatin capsules or enteric pills or by the use of physiological saline solution as a beverage. Recent studies indicate that sodium salts other than chloride are necessary to maintain suprarenal animals in optimal condition. It has been demonstrated by Allers and by Harrop, Soffer, Nicholson, and Strauss that suprarenalctomized dogs can be maintained indefinitely by diets containing sodium chloride and sodium bicarbonate in adequate amounts without the addition of cortical extract. Clinical data on this point are lacking, but the use of the sodium salts of organic acids in addition to the treatment just mentioned promises to be a valuable procedure. A high salt intake is essential in the latent or chronic case and, of course, in the treatment of the patient who presents symptoms of crisis. It has been noted that patients who are receiving maintenance doses of cortical hormone will have mild symptoms of collapse when salt is withdrawn, and it has been observed that the hormone appears to act in a much more effective manner if an adequate intake of salt is maintained.

The reputation of the cortical hormone has suffered somewhat because of the fact that the available commercial preparations have varied considerably in potency and in some instances have been completely inert. It has been demonstrated that patients with severe suprarenal insufficiency may undergo marked improvement or recovery even when no special attempt has been made to provide salt or fluids. The treatment indicated in the various stages of Addison's disease is difficult to anticipate and must be highly individualized. There are a considerable number of latent cases in which no hormone whatever is needed and the patients get along comfortably on a normal intake of salt. Other patients remain in what Harrop has called "chronic relapse" and require large amounts of the hormone and an increased intake of salt to maintain life. Are there additional hormones which need to be replaced, or do compensatory mechanisms which operate in some cases fail in others? These questions cannot be answered at the present time, but it is entirely probable that the next great advance in the treatment of Addison's disease will be along these lines.

With regard to the dosage of cortical hormone the author says that entirely satisfactory directions are difficult to outline since both the potency of the preparation and the requirements of the patient may vary over a wide range. To date, standardization on the

basis of dog units (cubic centimeters of extract per kilogram of body weight required to maintain the bilaterally adrenalectomized dog) has not been satisfactory, and there is no adequate physiological yardstick which measures the effect on the patient. The amounts of hormone required have been determined largely on a basis of clinical experience, virtually a process of trial and error. In crisis, the requirements are large (from 10 to 20 c cm or more daily). The presence of infection calls for even greater amounts, as has been well demonstrated in the experimental animal. Following syndromes of acute insufficiency it may be necessary to continue with large amounts of hormone for several days before the dose can be reduced with safety. Maintenance dosage can be determined only by gradual reductions in dosage with careful observation of the patient's general condition. A rapid falling off in caloric intake and body weight is a danger signal. Good appetite and a rising weight curve are criteria of adequate treatment. In general, small doses (from 1 to 5 c cm) of the hormone are virtually useless. In most instances the patient needs either 5 c cm or more or no hormone at all. Subcutaneous administration is possible with most preparations, but the intravenous route is necessary in emergencies. No toxic effects have been noted. The failures are attributable to insufficient hormone rather than to overdosage.

The following three important conclusions seem warranted:

- 1 The morbidity of the disease has been greatly decreased by present-day methods of treatment.
- 2 There is definite evidence that life is being prolonged beyond the figures which were established by Guttman.
- 3 Atrophy of the suprarenal gland is more evident as a cause of death than before, presumably because of the survival of fragments of cortical tissue in tuberculous lesions which, with some assistance in the form of hormone treatment, may suffice to maintain life.

During the year 1934, not a single patient with Addison's disease died while in Rochester. Two patients died elsewhere because of circumstances under which it was impossible to meet the requirement of emergency treatment with sufficient promptness. A greater number of patients are living and in good condition than at any time in the last ten years. Some of them are actively engaged in earning a livelihood, several at rather strenuous occupations. Some of those in whom the condition is more severe are obviously restricted in their activities. In one case of severe Addison's disease, it has been possible to perform a major surgical operation (nephrectomy). In general, it appears that a hopeful attitude with regard to the treatment of the disease is entirely justifiable. The isolation of the crystalline hormone by Kendall may well lead to the synthesis of this substance in the near future, with a resulting decrease in its cost, a better method of unit dosage, and increased efficiency of treatment.

Kendall, E. C.: Adrenal Cortex Extract. *J Am M Ass* 1935, 105 1486

By the use of preparations of cortin which possess the physiological activity which has been described, a large number of patients with Addison's disease have been treated at the Mayo Clinic, and during the past two years no patient has died when under direct observation there, from adrenal deficiency alone. In three cases, however survival resulted in the development and extension of tuberculosis in various parts of the body. In one case urinary tuberculosis developed in another there was an extension of pulmonary tuberculosis and in a third, tuberculosis of the spine developed with abscess formation. The first two patients died with tuberculosis as the principal cause of death. As Snell has pointed out, it seems highly probable that patients with Addison's disease which is adequately controlled with cortin may develop tuberculous lesions in other parts of the body and this adds greatly to the difficulties of treatment. Two patients with severe Addison's disease which was controlled with cortin have undergone major operations, one a nephrectomy and the other a spinal bone graft. Three patients have been operated on for tumors of the adrenal glands. Definite symptoms of adrenal deficiency were present after the operation and the patients probably would not have survived without adequate treatment with cortin. These results are evidence that surgical operations are now possible even in the presence of Addison's disease.

Before the isolation of insulin, surgical operations on the diabetic patient were attended with a high mortality. Experience has shown that surgical intervention has a far greater risk in Addison's disease than in diabetes. Even the type and duration of the anesthesia are of great importance. By the use of a satisfactory preparation of cortin, which is now available, the surgeon can operate without undue risk on patients with Addison's disease, and operations on tumors of the adrenal gland itself may dramatically bring about restoration to a normal condition. For the group of patients under observation at the Mayo Clinic, cortin has proved as specific and useful in Addison's disease as insulin in diabetes.

Gray, J.: The Effects of Obstruction of the Urinary Tract, with Particular Relation to the Formation of Stones. *Br J Surg* 1935, 3 45

Pathological lesions in the urinary tract are most liable to occur in the presence of obstruction. However it is sometimes impossible to say what the primary cause of some cases of hydronephrosis may be.

The author cites the case of a Chinese patient thirty years of age who was admitted to the hospital with severe hematuria following a blow on the back with an iron bar. A diagnosis of rupture of the kidney was made and expectant treatment was instituted. When it was possible to examine the patient a diagnosis of hydronephrosis with calculi was made. It was impossible to say whether the kidney condition was present prior to the injury or

not. As a result of this observation the author considered it desirable to investigate the condition of the urinary tract in cases of obstruction and to determine whether stone formation is liable to occur in experimental obstruction.

In a series of rabbits one ureter was ligated and the condition of the obstructed and unobstructed sides investigated. Twenty-five of the rabbits were kept on a normal diet with complete obstruction for a period averaging at least three months. In these animals there was no stone formation. Fifteen rabbits were put on a stone producing diet for a period of three months. Stones were formed in four. None of the stones occurred in the normal kidney.

The author concludes that a marked effect is produced on the blood supply, the renal tubules, and the pelvic epithelium by obstruction. When, in the experiments reported, the obstruction was complete there was no tendency toward stone formation even though the rabbits were put on a so-called stone-forming diet whereas when the obstruction was partial there was a marked tendency toward stone formation. The important factors seem to be an increased calcium content of the kidney and a pathological condition of the pelvic epithelium favoring the deposition of calcium around it as a nucleus.

ELMER HARR, M.D.

Gray, J.: The Effect of Experimental Interference with the Blood Supply of the Kidneys, with Particular Reference to the Formation of Stones. *Br J Surg* 1935, 3 458

Lenche and Polcoid in a series of experiments theorized that deposition of calcium takes place in connective tissue of low metabolism if the blood supply is diminished, particularly in the presence of hypercalcemia. Clinically it is a common observation that renal calculi develop in patients who have been recumbent for a long period of time. The authors concluded that if the blood supply of the kidney were reduced experimentally in the presence of hypercalcemia, renal calculi would form. Forty rabbits were used, twenty on a normal diet and twenty on a diet to produce hypercalcemia. To cause hypercalcemia, a 5 gm. of calcium and 1 drop of a concentrated extract of Vitamin D rendered, were added to the diet daily. It was found that on this diet the content of calcium in the urine was markedly increased and that of phosphates diminished relatively or absolutely.

The difficult part of the experiment was to reduce the blood supply without causing extensive damage to the kidney. This was accomplished by separating the two terminal branches of the renal artery and ligating one of them close to the pelvis. However, if the branch ligated was too large there was extensive necrosis of the renal parenchyma.

In no case did stones form in the normal kidney. While stones occurred on the ligated side in the animals given the normal diet as well as those on the calcium-vitamin D diet, they were three times as large in the latter.

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From tests of renal function with indigo blue and phenolsulphophthalein it was concluded that there was no gross defect as a result of the functional treatment.

A sufficient number of kidneys were examined to demonstrate an absence of all signs of the urine of the kidney operated upon. The normal side is neutral or often acid. Stones were produced here alkalinity was more marked.

It was noticed that in the cases in which stones were present there was an abnormality of the pelvic epithelium with marked desquamation and frequently a deposit of calcium at and around the damaged areas where the desquamation was obvious. According to the findings it is necessary to have a dietary factor such as a calcium phosphate imbalance to produce stone and a local factor leading to precipitation of the stone for ingested substances.

As stones always form in the pelvis or calyces, it seems that a cavity is all a piece of. In all cases there is some abnormality of the epithelium lining and frequently the stone could be demonstrated forming around desquamated epithelium. The author believes that the dead cells formed a nucleus for the stones.

Other factors noted were an alteration in the secretion and an increased production of mucoid material. It is quite possible that these may be an influence in stone formation.

Dresfus M. R. Pyelography in Polycystic Kidneys
(La pyelographie dans les reins polykystiques)
Ann. Chir. 1935, 20, 31

In general the diagnosis of polycystic kidneys is easy, because palpation of the lumbar fossa reveals bilateral enlargement of the kidneys. Occasionally cystic degeneration is unilateral or occurs in one kidney before the other.

Clinically, a diagnosis of unilateral cystic kidney is almost impossible without exploratory operation or pyelography.

The author believes that the X-ray shadow in polycystic kidney is sufficiently characteristic to differentiate the condition from cancer and tuberculosis. He shows the changes by means of six roentgenograms. In the majority of cases the kidney is grossly enlarged, often extending from the level of the tenth rib to the iliac crest. The outline of the kidney shadow is clearly defined, but may show a somewhat irregular border corresponding to the convex walls of the cysts. There have been reports of rare cases with no increase in the size of the kidney.

Usually the kidney pelvis is elongated. The borders are not notched although the pelvis may be encroached upon by the cysts. The contour of the pelvic shadow always remains clearly defined. As a rule the long axis of the pelvis is usually parallel with the vertebral column, but in some cases may be at right angles or T-shaped. The calyces appear elongated, but their outlines are perfectly clear although the encroachment of the cysts may produce the appearance of numerous minor calyces. The

ureter may be displaced toward the spine, may show a considerable bend, or may even lie over the vertebra. Pyelography will often reveal a similar change in the kidney of the other side.

In cancer the outlines are irregular, one or several calyces may appear to be amputated, shadows of pedunculated masses show in the pelvis, and there is a marked rigidity of the contour of the pelvis at the site of the tumor mass.

The article is followed by an extensive bibliography.

Higgins, G. C. Transuretero Ureteral Anastomosis
Surg. J. 1935, 31, 319

Higgins reports the first case in which transuretero-ureteral anastomosis was performed on a human being. In 1909, Sharpe, of St. Louis, described experimental operations of this kind on dogs and calyces and in 1911 Gilbride, of Philadelphia, described the operation on the calyces. Both of these surgeons showed the operation to be anatomically feasible but the author's case is the first in which it was physiologically successful in man. Although such a procedure may seldom be indicated it is an anatomical and physiological possibility and adds another conservative surgery.

The author's patient was a man twenty five years of age who gave a history of frequency, urgency, nocturia, and pain in the region of the right kidney during micturition. These symptoms had been noted for about a year. Four or five months after the development of the pain, cystostomy revealed several small stones free in the bladder and others in a large diverticulum in the right side of the bladder. The stones were removed, but the diverticulum was not disturbed. After the operation the symptoms persisted.

Four months later the patient had an attack of severe pain over the bladder associated with chills and fever. Operation disclosed a diverticulum which had ruptured and a large accumulation of urine, pus, and small calculi in the pelvis between the peritoneum and the bladder. Closure of the diverticulum was followed by an eventful convalescence. The patient gained 12 lb and with the exception of the pain in the right renal region on micturition, the urinary symptoms subsided. The pain was so severe that the patient was obliged to lie down after voiding. Tests of urine were negative for pus and organic. Tests of urine from each kidney and of urine from the bladder were negative for pus and organic. The findings of other laboratory tests were all within the range of normal. Cystoscopy showed hypertrophy of the trigone with some obstruction. This was resected, but the symptoms persisted. When the patient attempted to void, it was found that he had a reflux of urine up to the right kidney pelvis. This was accompanied by excruciating pain and was gradually producing a hydronephrotic and hydronephrosis.

Three operative procedures were considered. Nephrectomy, reimplantation of the ureter into the

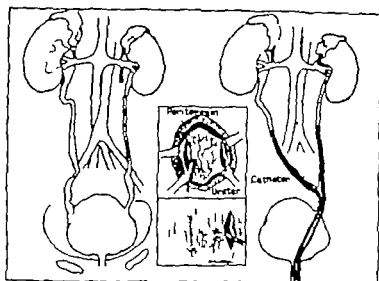


Diagram of operation.

bladder and transplantation of the ureter into the rectum. As the kidney was not infected and had good function nephrectomy seemed unsafe. Re-implantation of the ureter into the bladder seemed to be contra-indicated by the possibility of numerous adhesions about the bladder due to the previous diverticulectomy. There were good reasons also against transplantation of the ureter into the rectum.

When the patient was seen in consultation with Lower transuretero-ureteral anastomosis was regarded as the best procedure especially as the re-implantation could be done at the site of the dilatation of the left ureter without danger of stricture or impairment of function of the left kidney.

With the patient in the Trendelenburg position, the abdomen was opened in the midline. After the intestines were packed away an incision 2 in. long was made over the right ureter. The right ureter was then freed down to within $\frac{1}{4}$ in. of the bladder, where it was doubly ligated and tied. The proximal end was then fully isolated for about 3 in. The left ureter was dissected free at the site of the dilatation near the brim of the pelvis, and two ureteral catheters were placed in this ureter. With a curved clamp, a tract was made posterior to the parietal peritoneum from the right ureteral bed at the brim of the pelvis to the point in the region of the left ureter where the anastomosis was to be performed. The mobilized end of the right ureter was then brought through this new bed to be anastomosed to the left ureter. A small longitudinal incision was made in the left ureter and one of the catheters delivered through the opening. This end of the catheter was passed through the open end of the right ureter to the right kidney pelvis to act as a splint. The free end of the right ureter was then

anastomosed to the side of the left ureter with interrupted sutures of triple "O" chromic catgut. The incision in the posterior parietal peritoneum was closed with interrupted sutures. Drainage was established by a stab incision through the abdominal muscles to the region of the anastomosis and the abdomen closed in the usual manner.

There was no leakage of urine. Convalescence was uneventful. The patient was discharged 14 days after the operation. Observations made one and a half years later showed both kidneys to be functioning, and disclosed no evidence of obstruction at the site of the ureteral anastomosis. At the present time the patient is entirely free from urinary disturbances.

CLAUDE D. HOLMES, M.D.

BLADDER, URETHRA, AND PENIS

Mots, C. The Results of Treatment in 1,000 Cases of Gonococcal Urethritis at the Hospital St. Louis (Résultats du traitement à l'Hôpital Saint Louis de mille cas d'urétrites gonococciques). *J. d'ur. méd. et chir.* 1933, 40: 215.

At the Hospital St. Louis, Paris, during 1933, 3,500 cases of gonorrhea were admitted. Because of the large number most of the patients had to perform the urethral irrigations themselves. However every patient returned to the clinic physicians every eight days for re-examination and treatment.

This report is based on 1,788 male patients who reported to the clinic between December 30, 1932 and June 13, 1933. Of these 175 did not return to the clinic, 513 abandoned the treatment so that complete cure could not be verified, and 1,200 were treated by lavage with potassium permanganate until cured.

Of the latter, 18 per cent were cured within one month, 44 per cent within six weeks, 67 per cent within two months, and 88 per cent within three months. The author gives also the incidence cure in the same time intervals in cases of infection of both the anterior and the posterior portions of the urethra. It was noted that the condition was more resistant when the posterior urethra was involved. Complications were fewer and the total duration of the illness was shorter when treatment was begun within a day or two of the onset of the urethritis.

In the resistant cases irrigation with permanganate solution was not sufficient. Medicated bougies, mercurochrome, vaccines, and urethral and prostatic massage were required for cure.

There were 258 complications in the reviewed cases. Sixty-nine developed before the treatment was begun and 189 during the course of treatment. Only 13 per cent of the patients had rheumatic symptoms. In no case were these symptoms severe. They were promptly relieved by the administration of antigonococcus vaccine supplied by the Pasteur Institute.

The author concludes that large irrigations with potassium permanganate are most effective in the treatment of gonorrhea and that when they are used the incidence of complications is lower than in cases treated by the injection of antiseptics into the urethra by syringe.

MARSH WILLIAM POOLE, M D

GENITAL ORGANS

Thompson, G J. Recurrence of Urinary Obstruction Following Transurethral Prostatic Resection. *J Urol*, 1935, 34, 405.

Of a series of 1,694 patients subjected to transurethral resection of the prostate at the Mayo Clinic during the interval from January 1, 1913, to January 1, 1935, 49 have returned and have been operated on again for the relief of urinary obstruction. Of these 49 patients, 16 suffered originally from carcinoma of the prostate, 10 from a median bar formation or contracture of the vesical neck, and 23 from adenomatous enlargement of the type formerly treated by prostatectomy.

The 10 patients who had a median bar formation or contracture of the vesical neck belong to the group for which a punch operation has been acknowledged the operation of choice. Symptoms of urinary obstruction recur in a greater proportion of cases of this type than in a group of cases in which there is adenomatous enlargement of the prostate.

The 23 patients with adenomatous hyperplasia probably all had a certain amount of regrowth of prostatic tissue although 6 of them said they had never been completely relieved by the first operation. In 5 others a definite new growth could be recognized by cystoscopy.

In every case in which there was a recurrence, the postoperative stay in the hospital was shorter after the second operation than after the primary opera-

tion. Without exception, the convalescence was smooth.

Recurrent urinary obstruction following transurethral resection will be infrequent if the primary operation is thorough. If a good functional result is not obtained immediately, it is best to remove more tissue without delay.

Greater deformity of the prostatic urethra results from suprapubic or perineal prostatectomy than from prostatic resection. Recurrent intra-urethral proliferation of adenomatous tissue is little, if any, greater after transurethral resection than after prostatectomy.

Up to the present time the percentage of cases in which urinary obstruction has occurred after transurethral resection is much less than predicted.

MISCELLANEOUS

Compan, V. Aortography in the Service of Urology (*L'aortographie au service de l'urologie*). *Arch d'anal des reins et d'organes génito-urinaires*, 1935, 9, 453.

Aortography has been relatively recently proposed by Dos Santos (Lisbon). It consists essentially in making a roentgenogram of the abdomen immediately after injection of the abdominal aorta with a suitable contrast substance such as a concentrated solution of sodium iodide, thorium in the form of thorostrat, collathor, or any of the opaque substances which are ordinarily used for descending pyelography. The inferior extremities are excluded by the application of pressure.

The technique of this procedure is the same as that of lumbar puncture, but the needle is directed upward so that the aorta is punctured in its fixed part, i.e., between the pillars of the diaphragm.

As aortic puncture is painful, the induction of spinal or inhalation anesthesia is necessary.

To illustrate the value of this method, Compan reports the case of a female patient who gave a history of having been stabbed in the right lumbar region some time previously. When the patient was seen at the clinic there was a tumefaction in the right groin which extended into the iliac fossa and the hypochondrium. At operation, incision of the fascia transversalis was followed by profuse bleeding and the surgeon, suspecting an aneurism of the renal artery, stopped the hemorrhage and closed the wound. Subsequent arteriography disclosed an intact renal artery and the patient was re-operated upon successfully.

In order to obtain a good picture of the abdominal vessels and of the renal circulation Compan has adopted a new technique which permits rapid passage of the contrast substance into the aorta (at the rate of 5 c. cm. per second). The roentgenogram is made as soon as the opaque substance is present in maximum concentration in the arterial branches of the aorta.

In discussing the applications of this method, Compan expresses the opinion that arteriography is

of great aid in the diagnosis of arterial aneurisms in the kidney. With the described method the presence of abnormal inferior polar arteries and the resulting pathological changes in the renal pelvis may be promptly detected.

The method is of value also for the early diagnosis of renal neoplasms which give rise to marked vascular changes. In tuberculosis, in which ureteral catheterization cannot be performed, arteriography is far superior to descending pyelography because it will disclose the circulatory changes in the diseased kidney in comparison with the normal arterial distribution of the other kidney.

The method is furthermore of great value in localizing pathological processes which otherwise would be difficult, if not impossible, to diagnose. Dos Santos reported a case of hydatid cyst of the inferior pole of the spleen in which the condition was diagnosed by aortography and the diagnosis confirmed at operation. RICHARD E. SOEHR

Campbell, M. F.: Urological Injuries. *Am. J. Surg.* 1935, 50, 327.

Most urological injuries are potential medical-legal problems due to the increasing use of motor vehicles which cause more urogenital traumas than any other single agent. Correct diagnosis and treatment are both the humanitarian ideal and sound economics. There are many cases in which death is the direct result of a urological injury caused by a motor vehicle, and a charge of murder may be made.

Urological injury must also be considered. The most common forms are urethral and vesical trauma coincident to cystoscopy perforation of the ureter trauma caused during pyelographic study or during treatment of the upper urinary tract, and division of the ureter during an operation such as hysterectomy. Among important genital injuries are accidental subtotal amputation of the penis during rubberband circumcision. These various injuries may provoke civil suit, and when fatal, criminal suit.

It must not be forgotten that in many instances subjection of the patient to the procedure necessary to make a diagnosis is sometimes poor surgical judgment as it may result in death from shock or hemorrhage.

Renal injuries may be classified as contusions, lacerations, ruptures, crushings, and penetrating wounds. Injury of the renal pedicle is usually considered separately. In fifteen years, fifty-five cases of renal injury were treated in the Bellevue Hospital, New York.

The kidneys may be injured by abdominal loun, or lumbar blows, crushing accidents, indirect force, sudden muscular exertion, or penetrating wounds. In some cases renal trauma may be an occupational injury. Penetrating wounds are usually caused by bullets, knives, the handle of tools, or fence pickets. Perforation of the renal perichyma by a ureteral catheter or injury by pyelographic extravasation are seldom important although they may provoke a suit for malpractice. Pre-existing renal disease,

particularly hydronephrosis, predisposes to renal injury. It must be remembered that injury of the renal arteries is followed by loss of function and subsequent atrophy.

Renal injury is accompanied by one or more of the following manifestations: shock, hematuria, renal pain, tenderness in the loin, inspiratory pain, the appearance of a mass in the loin, pelvic falling of the blood pressure, a distention of the circulating red cells and hemoglobin, a variable elevation of the white cells, anuria, and coma. Hematuria is the most characteristic sign of renal injury. It occurs in approximately 95 per cent of all cases. Its source can be determined only by a complete urological examination.

The course of the condition depends on the severity of the lesion and whether infection occurs or not. The prognosis depends on the severity of the injury and its associated complications. The mortality is slightly lower in cases in which operation is done than in those not treated surgically.

The treatment is conservative when hematuria and other signs of bleeding disappear promptly. The body fluids are restored by the transfusion of whole blood or the administration of 5 per cent glucose in physiological salt solution by intravenous infusion or hypodermoclysis. When immediate transfusion cannot be performed, the intravenous injection of whole blood or of horse serum may favor hemostasis. Excretory urographic studies may be made when the bleeding ceases. Fortunately most injured kidneys do not require immediate exploration and various important factors concerning the patient's condition may be determined without undue haste.

The patient should be kept quiet in bed until there has been no hematuria for a week. This is particularly important in the cases of children.

Surgical treatment is of course necessary when there is evidence of intraperitoneal injury. Nephrectomy should not be performed until the presence of a good kidney on the other side has been established. Free retroperitoneal drainage is always necessary when the kidney has been merely lacerated and not removed. When a renal pedicle has been lacerated close to the aorta or vena cava and when, following nephrectomy, ligation of the pedicle is difficult, clamps should be left on the renal pedicle.

Penetrating wounds should always be treated conservatively. Among the complications is secondary hemorrhage. Secondary renal, perineal, subphrenic, pleural, and intraperitoneal abscesses are often directly fatal. Occasionally duodenal fistula, pyonephrosis, or secondary hydronephrosis develops.

The ureter is rarely injured. Watson has shown that it is impossible to rupture a normal ureter by the passage of a ureteral catheter. Excretory urography will doubtless indicate the site of the injury and show the extravasation. Commonly nephrectomy is demanded.

The bladder is subject to the same types of injury as the kidney. Ninety per cent of all ruptures of

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the bladder occur in males. The vulnerability of the bladder is in direct proportion to the distention of the organ. Vesical rupture is frequently accompanied by or associated with pelvic or other fractures. Whenever the pelvis is fractured, rupture of the bladder should be suspected. In two thirds of all cases of vesical rupture the rupture is intraperitoneal and free fluid is found in the abdominal cavity. The symptoms of vesical rupture are shock, cardiovascular depression, pain low in the abdomen, hematuria, dysuria or inability to void, and gastrointestinal disturbances. Delay in recognition of the condition greatly increases the mortality.

The most commonly employed test for rupture of the bladder is catheterization. Blood rather than urine may be obtained. Clots may plug the catheter. The injection of a known amount of fluid and measurement of the quantity returned is seldom an accurate observation.

Of forty-one cases of ruptured bladder in which the catheterization test was used in Bellevue Hospital, New York, it was found of diagnostic value in thirteen.

Cystography is the simplest method of demonstrating vesical rupture. Cystoscopy is frequently impossible.

In all cases the prognosis is grave. The treatment indicated is supportive and operative. Operative speed is imperative. The principle of operation is the establishment of free suprapubic drainage. The complications are peritonitis or death from associated injury of other viscera.

The nature of injuries of the penis depends upon their cause. The most common injury is due to the

application of a constricting force around the organ. Injuries involving the corpora may be followed by cicatricial distortion and render erection imperfect or painful. If there is great damage it is necessary to short-circuit the urine by suprapubic or perineal drainage. When the blood supply has been severed amputation is necessary.

Injuries of the urethra are not uncommon. Rupture of the urethra usually follows injuries of the perineum and may be produced by instrumentation. The first procedure indicated is suprapubic drainage. If the urethra is severed it should be repaired at once. Every case of ruptured urethra should be treated for a long period of time by dilatation. If proper treatment is given the prognosis is good. With the development of a periurethral phlegmon or urinary extravasation the prognosis is that of the complication.

Injuries of the scrotum, tunica vaginalis, testicle, epididymis, or spermatic cord are usually the direct result of a blow. Orchidectomy is indicated when torsion of the testicle cannot be reduced and may be indicated by secondary infection.

Injuries of the spermatic cord are usually not serious except that they cause sterility. Injuries of the prostate and seminal vesicles are rare.

In conclusion the author says that when operative work is required for injuries to the genito-urinary tract speed is imperative. Shock and hemorrhage must be considered. In general the surgeon should be content to stop hemorrhage, repair important structures, and establish free drainage.

ELMER HESS, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES TENDONS, ETC.

Fairbank, H. A. T.: Generalized Diseases of the Skeleton. *Proc Roy Soc Med Lond* 935 28 191

Any disturbance of the blood calcium or phosphorus, the enzyme phosphatase, the internal secretions, especially the pituitary and parathyroid secretions, or of the Vitamin D content of the diet will cause disease or maldevelopment of the bones.

In *osteogenesis imperfecta* the bones are honeycombed by cystic lesions and there are frequent fractures. In some cases the blood calcium is normal.

In *osteopetrosis* or marble bones the roentgenograms show a marked increase in the density of the bones. The condition may be local or generalized. In some cases the bones are quite friable and have a chalky appearance. There may be alternate bands of dense and chalky bone.

Dyschondroplasia is a cartilage disease. The cartilage appears in irregular masses within the metaphyses. In one type of chondro-osteodysplasia the patient is dwarfed and slow in learning to walk. In another type there may be deformities of the joints without dwarfing.

In *achondroplasia* there is an arrest of the growth of the limbs causing disproportion between the limbs and trunk.

In *cranio-clasiodysostosis* the ossification of the pubis and the clavicle is deficient. There is some evidence of hereditary transmission of the condition.

Ostitis deformans affects chiefly the tibia and femur. Sarcomatous changes are said to occur sometimes in the affected bones, but the author thinks this is very rare.

Under errors of metabolism are grouped *osteomalacia* and *rickets*. The former is regarded by some clinicians as rickets developing after growth has stopped. Deficient excretion by the kidneys has been suggested as a cause of renal rickets. Severe deformities occur at the ends of the long bones. Costal rickets seems to be the result of a deficiency of Vitamin D, calcium, and phosphorus. It responds to treatment with light and other treatment suitable for infantile rickets.

WILLIAM ARTHUR CLARK, M.D.

Hunter, D.: Studies in Calcium and Phosphorus Metabolism in Generalized Diseases of Bones. *Proc Roy Soc Med Lond* 935 28 191

Hyperparathyroidism. The general resorption of calcium from all of the bones in *ostitis fibrosa* is the result of hyperfunction of a parathyroid tumor. The condition is characterized by a high serum calcium,

low plasma phosphorus, high phosphatase, as is increased output of calcium in the urine, and generalised decalcification of the skeleton. The blood calcium may vary from 12.6 to 23.6 mgm. and the blood phosphorus from 1 to 2.7 mgm. per 100 c.c. The thyroid tumor is rarely palpable. Subtotal removal of the parathyroids results in striking improvement. The pains in the bones and systemic symptoms disappear, the blood calcium and phosphorus return to normal, and the roentgen appearance of the bones improves. In sixty recorded cases there were two postoperative deaths. This parathyroid condition was discovered about ten years ago and its outlook is now most promising.

Localized osteitis fibrosa with cyst formation and spontaneous fractures as seen in adolescence, has no relation to the parathyroids.

Thymic carcinoma. Although the blood is normal, the calcium excretion may be increased eight times. A decrease in the bone calcium occurs in fewer than half of the cases.

Ostitis deformans (Paget). Although this is a disorder of mineral metabolism, the blood calcium and phosphorus are normal. No enlargement of the parathyroids has been demonstrated. The calcium output in the urine may be increased four or five times. The condition is accompanied by pain in the bones and general debility. No known treatment has any effect upon it.

Malabsorption. A serum calcium of from 12.4 to 10.1 mgm. per 100 c.c. in this disease has been recorded. The plasma phosphorus may also be kept when there is renal insufficiency.

Carcinoma of bones. This process may be either osteoplastic or osteolytic. When it is osteolytic the calcium output may be two or three times normal. The phosphatase is raised, but the blood calcium and phosphorus are normal.

Osteosclerosis. In two of three cases excreted the calcium excretion was twice the normal. In the third it was normal. The blood calcium, phosphorus, and phosphatase were normal.

Osteomalacia. In this disease there is diminution in the density of all of the bones, and in some cases spontaneous fractures occur. A few cases may be cured by proper diet, including Vitamin D and calcium salts. The blood calcium and phosphorus may be normal. In cases with fatty stools, ascites, and indigestion the calcium is usually low and the phosphorus ranges from low to normal. The local output of calcium is high and the urinary output low. The bones are decreased in density.

Generalized osteoporosis with renal glycosuria. In two of the author's cases of this condition the neck was explored for parathyroid tumor but no tumor was found. Both cases showed a slight increase in

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the blood calcium, a very low phosphorus, a slightly raised phosphatase, and an increased total output of calcium

Hunter reports in detail seven cases of generalized bone disease

The article contains six roentgenograms and numerous tables of the findings of laboratory investigation

WILLIAM ARTHUR CLARK, M D
Moehlig, R C, and Murphy, J M Paget's Disease (Osteitis Deformans) *Endocrinology*, 1935; 19 515

Of twelve patients with Paget's disease, five give a family history of diabetes mellitus. In the families of each of these five there was at least one member 70 in or more in height. Also in five families, one or more members weighed 200 lbs or more. These observations lead to the conclusion that constitutional inheritance plays a major role in the development of the disease

It is known that the serum phosphatase is increased from ten to fifty times normal in Paget's disease. This was true in the cases reviewed. Bodansky and Jaffe have suggested that determination of the serum phosphatase might be used in searching for the earliest evidence of the disease in families. Moehlig and Murphy state that one should watch also for osseous dystrophies in families with diabetes and tallness

The response of five of the authors' patients to glucose tolerance tests was not unlike that of true diabetics. These five were therefore placed on a weighed diet with insulin. Cessation of the bone and head pains and an increase in strength were noted almost immediately, and there was an accompanying drop in the blood phosphatase. In the opinion of many who have studied Paget's disease the condition is generally accompanied by atheromatous degeneration of the arteries. Cone believes that the disease is the result of chronic cardiovascular disease

The work of Haussay and associates has demonstrated that the pituitary gland plays a leading role in carbohydrate metabolism. Joslin has shown that diabetic children are overgrown. He attributes the overgrowth to a pituitary element. The assumption of a relationship between the familial tallness found in Paget's disease and the pituitary gland and osseous relationship between the pituitary gland and osseous development has been amply demonstrated by clinical data. In pituitary disturbances with calcium abnormalities the parathyroids are secondarily influenced by the condition of the pituitary

The reviewed findings therefore suggest to the authors that the function of the pituitary gland is involved primarily and the function of the parathyroid glands secondarily in the production of Paget's disease

RUDOLPH S REICH, M D
Lexter, E Several Diseases in Bone Transplants (Einige Erkrankungen von Knochentransplantaten) *Zentralbl f Chir*, 1935, p 1987

Because of the intimate blending of a free bone transplant in its new position with the bone tissues

to be bridged it is not surprising that diseases of the soft tissues or the bone of the surrounding area can pass over into the transplant. The author reports five cases in which this occurred. In the first case a streptococcal infection involved the transplant in a tibial defect by the hematogenous route. In another case amputation became necessary because a metastasis from an endothelial sarcoma formed in the transplant. It was probably not an extension from the adjacent tissues. In another patient the lower third of the radius was replaced with the lower end of a tibia from an amputated leg. The operation was done on account of chondrosarcoma. Twenty-four years later a large mucilaginous focus was demonstrated in the transplant and proved by microscopic examination

In the fourth case, resection of the radius was done because of osteitis fibrosa and non-union following fracture and the defect was bridged with bone from the tibia. After seven years the roentgenogram showed that the osteitis fibrosa had advanced throughout the entire transplant from both diseased metaphyses. It is not known whether the transplant was embedded with its own periosteum or whether the periosteum remained preserved by the author. Lever expresses the opinion that the encroachment of the changes due to osteitis fibrosa into the transplant was probably caused by periosteum remaining *in situ*. In the fifth case he reports, abnormal resorption occurred in a pathological fracture of the forearm of a girl sixteen years old and in the transplants used in the repair. The defects in the radius and ulna resulting from the resorption were replaced by transplants from the fibula and tibia respectively. Marked resorption occurred in both transplants. Albuminous osteitis with concentric atrophy was suspected. As this condition is based on endocrine disturbances, systemic treatment was first instituted. Later, a more extensive plastic repair of the gaps was undertaken and as much as possible of the indurated tissue enveloping the earlier resorbed transplants was removed. To date, no complications have developed

(F SCHMUTZLER) BARBARA B STIMSON, M D
Bastos, M, and Mazo, L Recent Observations on Gunshot Wounds of Joints (Observaciones recientes sobre heridas por armas de fuego en las articulaciones) *Actas Soc de cirug de Madrid*, 1935, 4 157

Most of the gunshot wounds of joints seen by the authors recently have been late ones. Either they were treated merely as wounds of the soft parts, not being recognized as joint wounds, or it was impossible for the surgeons at the front to give them the necessary immediate care. In early cases the removal of surgical cleansing of the wound by the removal of foreign bodies and injured tissue. The period of time within which surgical cleansing is permissible as the method of treatment is longer in joint wounds than in wounds of the soft parts. In wounds of the soft

parts, infection begins within six hours unless treatment is given. In injuries of joints the period of safety is twenty-four hours as the bacteria are resisted by the synovial membrane. Within this time surgical cleansing of the wound and irrigation of the joint cavity with an isotonic fluid generally prevent infection. This method is called ideal arthrotomy and often brings about healing by first intention and normal function.

As a rule injuries of the joints cannot be sutured primarily. Drainage is generally necessary. In doubtful cases it is better to drain than to close. In infections of the joints it is better to drain the periparticular spaces and recover than the joint cavity itself. The site of the infection is apt to be in the loose cellular tissue around the joint. The more severe the injury the more this is true. In severe cases of such infection the classical incisions for arthrotomy are apt to be insufficient and the wound should be opened by multiple atypical incisions.

Multiple atypical incisions are particularly necessary in wounds of the knee where drainage is very difficult because of the anatomical conditions. The hip, though a larger and deeper joint, is not nearly so difficult to drain as the knee because it has only a single joint cavity. Wilkerson opens the whole knee joint from side to side as for a resection. The author believes this is too severe a method. He has found that active mobilization is facilitated by keeping the limb suspended with hammocks and arrangements similar to those used in fractures of the femur. Small bits of detached bone may be removed, but one joint surface should not be removed with the other left intact. In some cases it may be necessary to excise both joint surfaces. In wounds of the hip the limb should be suspended in semiflexion and abduction combined with wire traction if there is a great tendency toward fixation of the head of the femur.

In the discussion of this report BRASO Y DIAS CASTRO advocated lubricating the edges of the wound, cleansing and then closing the capsule primarily. He irrigates with Chalmers's fluid (camphorated phenol). After closure of the joint a puncture is made, the exudate removed and from 3 to 30 cc of the fluid injected. After twenty-four hours the turbid serofibrinous fluid is removed and if the joint is still painful on pressure the irrigation is repeated once or twice. This treatment prevents phlegmon of the joint. AUGUST GOME MONCAY, M.D.

Doub, H. P., and Jones, H. C.: An Evaluation of Injury and Faulty Mechanics in the Development of Hypertrophic Arthritis. *Am. J. Roentgenol.* 9:35 34 35.

In this study the authors attempt to determine the effect on the neighboring joints of trauma sufficient to produce fracture of the bone. In order to rule out callus formation as a compensating factor 30 cases were selected from a group of 600 in which the fracture did not involve the joint itself. The effect of faulty joint mechanics on the production of

reactive changes about the joint are also considered.

In 25 of the 30 cases studied roentgenographically there was no evidence of arthritic changes after a period of eight months. One of the 50 patients showed evidence of arthritis at the time of fracture, but there was no apparent accentuation of the arthritis in the later roentgenograms. One case in which healing occurred with a varus deformity later showed a beginning arthritis.

These findings, while taken from a small series seem to indicate that a single severe trauma is not of much if any importance in the production of hypertrophic arthritis. In the case showing beginning arthritic changes the fragments had healed in such a position that the mechanics of the nearby joints were disturbed. This has been shown to be a frequent cause of hypertrophic arthritis.

The authors feel that advancing age with its attendant factors of arteriosclerosis with loss of elasticity and fibrillation of the cartilage is one of the most important factors in the production of hypertrophic arthritis. This also includes long-standing wear and tear and minor traumas.

The mechanical theory as to the etiology of hypertrophic arthritis must certainly be given a great deal of consideration. Faulty local mechanics, as in angulation of a long bone projecting the lines of force in such a way as to produce abnormal pressure on certain parts of the articular surfaces of the nearby joints, may produce quite marked change in the joint. The cartilage shows evidence of gradual erosion in the areas of abnormal pressure, and this is followed byburnation of the bone and marginalipping. There may be anatomical changes also that produce more general changes such as extensive osteolysis of the spine, which may not only affect the vertebrae but also produce unequal strain upon, and therefore affect, the peripheral joints.

MONCAY C. BULLOCK, M.D.

Maffei R.: Traumatic Hemangiomas Tumors of the Skeletal Muscles. *Br. J. Surg.* 1915 43 445.

The author reviews the literature on hemangiomatous tumors of skeletal muscles and reports a typical case. Of the 256 cases reported in the literature, the tumor occurred before the age of twenty years in 80 per cent and before the age of thirty years in 95 per cent.

Hemangiomas tumors of skeletal muscles are found most frequently in the lower extremities, especially the thighs. They are round or oval masses varying in size from that of a nut to that of an egg. They grow slowly and at first painlessly. They vary in consistency. As a rule they are diffuse, and often they are tender. The overlying skin is normal and freely movable. Pain usually develops. Impairment of function is common. The diagnosis is rarely made before operation.

On pathological sections the tumors are usually found to be bluish or reddish, but sometimes are grayish or yellowish-white. Microscopic examina-

tion shows them to be made up chiefly of vascular elements in a connective-tissue stroma, thick-walled arterioles, and dilated capillaries. In the central part the remnants of striated muscle are sometimes completely degenerated. Toward the periphery the fibers are better preserved.

The case reported by the author was that of a boy twenty-one years old who sought treatment for a swelling of the upper part of the left arm of two months' duration which had developed two months after an injury to the arm. Examination disclosed a smooth, firm, and elastic ovoid swelling about the size of a hen's egg on the inner and posterior aspect of the arm. The skin overlying the swelling was normal in appearance and freely movable. The swelling was not attached to the bone and was movable to some extent in a transverse axis. It became more prominent and fixed when the extensor muscles were tightened. Its borders were poorly defined, and it was slightly tender. A provisional diagnosis of fibroma of the triceps muscle was made and excision advised.

At operation, the triceps muscle was exposed and an infiltrating tumor mass excised from the belly of the inner head. To get clear of the growth, it was necessary to sacrifice a considerable amount of the muscle.

Recovery was uneventful. Three months later there was no demonstrable functional impairment of the arm.

On section, the tumor was found to contain a partially organized blood clot. Microscopic examination revealed characteristic young fibrous connective tissue, capillaries, and a very extensive overgrowth of the smaller muscle-walled arteries.

By most of those reporting such neoplasms, trauma is regarded of secondary etiological importance to the congenital factor. However, on the basis of the literature and his study of the case reported in this article, the author presents an argument emphasizing the importance of trauma. He states that the relatively frequent occurrence of the tumors in muscles is itself suggestive of trauma as the muscles are subject not only to external trauma but also to injury dependent on their inherent contractile power. Hemangiomatous tumors apparently never follow the complete rupture of muscles or fractures associated with muscle injury, doubtless because these conditions are treated by rest and immobilization. The author believes it reasonable to assume that in cases of minor injuries in which only a few muscle fibers are torn and rest is not enforced, a blood clot forms and the torn fibers retract. Granulation tissue then fills the gap and is subjected to trauma by contraction of the muscles which causes capillary hemorrhage and further damage to the muscle fibers, this cycle of reactive changes producing the growing tumor. The angiomatous nature of the tumor is due undoubtedly to the relatively large blood clot which also offers a favorable medium for excessive cell proliferation. The occurrence of the tumors in young persons may

be explained by the more frequent exposure of young persons to trauma and the fact that in young persons the regenerative processes are greater than in older persons.

RUDOLPH S. REICH, M.D.

Birnbaum, W., and Callander, C. L. Acute Suppurative Gonococcic Tenosynovitis. *J. Am. M. Ass.*, 1935, 105: 1025.

The primary foci of infection in acute suppurative gonococcic tenosynovitis may be the urethra, Bartholin's or Skene's glands, the cervical glands, prostate, seminal vesicles, or conjunctiva. By careful technique the gonococcus can be isolated in many cases. More men are affected than women, the ratio being 3:1.

The sheaths of the extensor tendons, especially those of the common extensor tendons of the fingers, thumbs, and toes, are affected most frequently.

Gonococcic tenosynovitis may occur in either acute or chronic forms. Acute gonococcic infection in the tendon sheaths is usually characterized by a mild inflammatory reaction with or without effusion. The severe forms produce frank suppuration. With the production of an exudate, an elongated fusiform swelling of the tendon sheaths may appear.

The tendons may show punctate hemorrhages, but are rarely destroyed as in streptococcic and staphylococcic infections. Complete absorption, the formation of adhesions, deformity, and severe functional disturbances may occur following the serous, seropurulent, or phlegmonous processes of the inflammation.

The diagnosis of gonococcic tenosynovitis is made on the basis of a history of venereal disease and clinical and laboratory observations. Kanavel stressed the importance of considering a hematogenous gonococcic infection in cases of tenosynovitis of obscure origin.

The signs of acute suppurative tenosynovitis are essentially those found in staphylococcic and streptococcic infections: swelling, redness, tenderness along the course of the tendon sheath, and limitation of motion. As a rule neither local symptoms (such as pain) nor general reactions (such as fever and leucocytosis) are as marked as in the pyogenic type. In all of the cases spontaneous or provoked pain is extreme and voluntary movements are difficult or impossible.

Twenty-four hours after the onset of tenosynovitis it may not be possible to demonstrate the gonococci by direct smear, but a positive culture may be obtained. After a few days even a culture may fail to show gonococci. Immediate bacteriological examination is therefore imperative.

The treatment of acute suppurative gonococcic tenosynovitis is the establishment of adequate drainage.

The author reports two cases of gonococcic tenosynovitis. The patients were women twenty and twenty-three years of age. Both had a pelvic infection, smears of which proved positive for gonococci. A smear of pus taken from the tendon sheath in one

case was positive for gonococci. In the other case the material became desiccated before bacteriologic studies could be made.

NORMAN C. BULLOCK, M.D.

Zwaidbergk, J. O. von: The Functional Prognosis in Cases of Severed Finger Tendons (Die funktionelle Prognose bei abgetrennten Fingerringen). *Swedish Läkarsällskapet*, 1933, p. 604.

This article is a review of cases of severed finger tendons from the files of the Swedish Government Insurance system. Such a review is of special value because it includes a much larger number of cases than can be obtained from single clinics, the end results can be studied over a much longer time and, since cases from all parts of the country are considered, a better picture is obtained than if the work of only one clinic is reviewed as the results in one clinic may represent the work of only one or two specialized surgeons.

The author reviewed the cases between the years 1918 and 1923 and those in the year 1931 which totaled 688. These included only cases without complicating bone, nerve, or blood vessel injuries. All were cases of complete tendon severance. In drawing his conclusions the author used the insurance evaluation of the results. The cases are classified into those with a good result, 6 cases in which a cure was recorded without further comment, those with a medium good result, 16 cases in which the disability was less than 10 per cent and there was no reason for compensation, and those with a poor result, 16 cases in which compensation was paid for a longer or shorter time after termination of the treatment.

Primary suture was done in 477 extensor tendons and 174 flexor tendons. A good result was obtained in 50 per cent of the extensor tendons but in only 45 per cent of the flexor tendons. In 22 per cent of the primarily sutured extensor tendons and 39 per cent of the primarily sutured flexor tendons the result was poor.

Secondary suture, that is, suture later than twenty-four hours after the accident, was performed 38 times. In 73 per cent of the tendons so sutured (13 extensor tendons and 7 flexor tendons) the result was good. In 4 cases the result was poor.

One extensor tendon and 4 flexor tendons were not sutured. The result was good in 3 and poor in 1 (flexor tendon).

The causes of the poor results, and especially of permanent injuries, after primary suture were scar contractions in 47 per cent of the cases, infection in 10 per cent, suture failure in 16 per cent, and unknown causes in 16 per cent.

Of the total number of cases, 83 per cent were treated by general practitioners and the others in clinics or hospitals. Of 23 patients more than sixty years of age 10 had a poor result. Of the cases with poor results, permanent reduction of working ability exceeding 50 per cent occurred in only 6 per cent.

(GILLMAN) LEO A. JOURNAL, M.D.

Lipshartz, R.: Late Subcutaneous Rupture of the Tendon of the Extensor Pollicis Longus Muscle. *Arch Surg* 1933, 31: 814.

Subcutaneous rupture of the tendons of the extensor pollicis longus muscle is a late complication of a Colles fracture is extremely uncommon.

The rupture has been variously explained. Some attribute it to trauma, believing that the tendon becomes strangulated in the sheath by rupture of the tenaculum tendinum containing the nearest blood vessels, and that, then lacking sufficient nourishment, the tendon degenerates, atrophies, and eventually ruptures during some slight movement of the thumb. Others are of the opinion that such a rupture can occur only in the presence of pathological changes in the tendon such as tenosynovitis, tuberculosis, syphilis, inflammatory changes, or tumor. As frequently no disease of the tendon can be considered a predisposing cause, it seems reasonable to assume that some type of injury to the tendon occurred coincidentally with the fracture.

The author states that a tenable explanation of the mechanism of this injury to the tendon is best obtained by an analysis from the morphological point of view. The following three factors should be considered: (1) the anatomical variations in the groove of this tendon on the distal dorsal surface of the radius, (2) the anatomical course of the tendon, and (3) the blood supply of the tendon. The groove for the extensor pollicis longus tendon is narrow and oblique, and frequently bordered by marked ridges. The ridges and the groove give origin to strong fibers which strengthen the dorsal radiocarpal ligament. The latter serves as an additional agent fixing this tendon in its narrow and oblique sulcus.

The unique and anatomical course and fixation of the tendon appear to be important factors in the genesis of rupture of the tendon and the accompanying blood vessels. The anatomical fixation of blood vessels is one of the contributing factors in the causation of vascular injuries following a severe continuing violence.

The author reports two cases of rupture of the tendon of the long extensor muscle of the thumb. The ruptures occurred five and six weeks, respectively after a fracture of the radius. The fractures were in good position and required no manipulation for their reduction. Thus the only tenable explanation for the rupture of the tendon was an indirect injury to the blood vessels of the tendon and the later development of necrosis of the tendon due to failure of the surrounding vessels to establish a collateral circulation adequate for repair.

Repair by operation should be undertaken without delay. In cases of recent rupture the lesion can be repaired by direct suture, as degeneration of the tendon occurs slowly. In the setting of the ends of the tendon the point of attachment of the suture should be 1 cm. or more from the end of the stump in order that the latter will be left untransected. The suture should be tied so that the knot does not

lie between the ends of the tendon. Silk is the preferred material for sutures.

If possible, the oblique course of the tendon should be preserved. However, it is probably advisable not to use the original groove for the following reasons:

1. The inadequate surrounding tissue may interfere with repair. The connective tissues surrounding the tendon are of the greatest importance in the repair of a wound in a tendon. They convey blood vessels and lymphatic vessels and permit easy gliding of the tendon.

2. The presence of scarring and adhesions may make the groove unsuitable. The construction of a pulley by means of fascia lata, as recommended by Platt, may overcome the latter difficulty.

As an alternate method, when the entire proximal portion of the tendinous segment is destroyed, the distal end of the tendon is attached to the extensor pollicis brevis muscle, as was done in one of the author's cases. This method prevents dropping of the thumb, but cannot restore independent action of the long extensor muscle. After any method of repair, the thumb is supported in extension for three weeks. Movement may be begun cautiously after six or seven days, but no force should be exerted before the third week. Faradic stimulation of the muscle belly in the forearm may be done after the seventh day. NORMAN C. BULLOCK, M.D.

Grams, H. Cysts of the Popliteal Space (Ueber Kniekehlenzysten). 1934. Koenigsberg: 1. Pr., Dissertation.

All formations in the popliteal space presenting the characteristics of a true cyst with the dominant signs of a tense, elastic consistency without evidences of inflammation and with a typical course are cysts of the popliteal space. They constitute about 0 per cent of all "ganglia." They are twice as common in males as in females. They usually occur between the ages of twenty-five and forty-five years and in robust, well-nourished individuals who are obliged to stand a good deal. Their onset is insidious. They are first noticed when they cause disturbances by their size and pain in the knee joint on movement. They grow slowly and are palpable as tumors ranging in size from that of a hen's egg to that of a man's fist. They are sometimes longitudinal. They are well circumscribed against the surrounding tissues by their tense elasticity. The skin over them is easily movable. They are adherent to the underlying structures by a broad base or a pedicle. They rarely show a connection with the cavity of the knee joint. Sometimes they press upon the peroneal nerve. Dissection reveals, on the circular major portion, processes the thickness of a finger which are attached to the joint capsule or the tendon of the semitendinosus muscle by a pedicle or are adherent to them by a broad base. The cysts are usually attached medially to the semitendinosus or the gastrocnemius muscles. If the pedicle is not attached to the joint capsule it is directed toward it. Reports

that the cysts communicate with the interior of the joint through these processes are disputed.

Histologically, the cysts consist of a wall and contents, both of which are the result of a degenerative process, mucous, watery, and hyaline. The wall is usually fibrous, endothelium is rarely demonstrable. According to Payr, the contents consist of cells in hyaline degeneration. Rice bodies are rare. Floederus describes the cysts as true tumors, arthromas, originating from the articular tissue, partly the direct result of the course of human development and partly aberrant.

The theory that the development of such cysts may be due to a single trauma such, for example, as an "accident," is rejected by the German Insurance Office. Bier considers the meshes of loose cellular tissue as basically the same as a mucosal bursa, tendon sheaths, and joints. Lymph and synovia are essentially the same. Pressure as a continuous trauma produces mucosal bursæ also at sites where they do not occur normally, such as the sternum, forearm, and, in tailors, the ankles, from sitting on the haunches. In addition, heredity, a relationship to chronic rheumatism and gout, the endocrine glands, and vascular disturbances have been held responsible.

After complete extirpation the prognosis is good. Without such treatment recurrences always develop. The cysts rarely disappear spontaneously with age or under treatment by the use of a compression bandage with a lead button. The prognosis is uncertain when the cysts are the site and point of origin of tuberculous granulations, sarcoma, myxoma, endothelioma, fibroma, chondroma, chondroosteoma, or hemangioma. Calcium and urate deposits are also to be observed in them.

In the differential diagnosis, difficulty may be caused by lipomas, nodes of varices, aneurisms, and cold abscesses. Abscesses other than cold abscesses are characterized by inflammation and contracture.

The treatment consists of thorough enucleation with care to protect the large blood vessels, the joint, and the peroneal nerve. Incision, puncture, injections, acupuncture, dissection, crushing, electrotherapy, radiotherapy, and enzyme treatment are followed by recurrence. The transplantation of fascia is said to prevent recurrence with certainty.

(EGGERT) LOUIS NEUWELT, M.D.

Garavano, P. H. Cysts of the Semilunar Cartilages of the Knee (Quistes de los meniscos de la rodilla). *Rev. de ortop y traumatol.*, 1935, 5: 21.

Garavano reviews the pathology, theories of origin, clinical syndrome, differential diagnosis, and treatment of cysts of the semilunar cartilages of the knee and reports five cases. In the latter the cysts had no endothelial lining, but intravascular and perivascular changes were present. The author attributes the cysts to mucoid degeneration of the cartilage favored by a scant blood supply and in some instances by trauma. He rejects the embryonic theory because it is based on the presence of an

endothelial lining in the cysts and because the development of the synovial membrane later than the semilunar cartilages precludes the possibility of incisions.

The article includes illustrations and a table of seventy-nine cases reported in the literature, and is followed by a bibliography. M. E. Moxer, M.D.

Mazzini, O. F., Reyes, A. S., and Monto, A.: Oculofasciitis in the Tendon of Achilles. A Peroneal Bone and Trochlear Apophysis of the Astragalus (Oculofasciitis en el tendón de Aquiles. Hueso peroneo y apófisis troclear del astrágalo). *Rev. de ortop y traumatol.* 935, 5, 44.

The cases reported by the authors were those of two men forty-six and forty-three years of age respectively. In one case the condition was bilateral. In both cases there was a history of trauma. In the first case subcutaneous tenotomy for club-foot had been done forty years previously and in the other there had been an electrical burn of the foot and leg. The first patient suffered from intermittent claudication although the clinical examination revealed no circulatory disturbance. In one case a trochlear process of the astragalus and in the other a peroneal bone was seen in the roentgenogram.

The authors summarize the fifteen cases of oculofasciitis in the tendon of Achilles which have been reported in the literature.

The article is accompanied by roentgenograms and a bibliography. M. E. Moxer, M.D.

FRACTURES AND DISLOCATIONS

Blechl, R.: The Treatment and Prognosis of Fresh Dislocations of the Shoulder (Behandlung und Prognose frischer Schulterluxationen). *Arch. f. orthop. Chir.* 935, 35, 381.

This is an exhaustive report on 116 cases of recent dislocations of the shoulder. The patients ranged in age from ten to eighty years. One hundred and ten were re-examined.

In the cases of anterior dislocation which constituted 47 per cent of the total number reduction was accomplished at first by the Kocher or Hippocrates method and later by the self-reduction procedure of Boehler. In the latter the patient, without anesthesia of any sort, sits on a chair and, with his elbow bent at a right angle, grasps some firm object such as the leg of a table with his hand. Then, with the hand of the wall arm he grasps the elbow of the injured arm and brings this arm into the greatest possible adduction. He then rotates himself away from the injured arm, as in Kocher's method. As a rule the head springs into the glenoid cavity with a distinctly audible snap when outward rotation reaches from 60 to 80 degrees.

In the cases of axillary dislocation, which constituted 51 per cent of the reviewed cases, reduction was done by Hippocrates' method under ethyl chloride anesthesia. After the reduction the axillary nerve was tested for paralysis by asking the patient to raise the arm laterally.

The after-treatment is important in the final result and therefore should receive careful attention, especially in cases of old injury and complicated dislocations. In the reviewed cases of anterior dislocation in persons under thirty-five years of age a retention dressing was sometimes not used. The average duration of the treatment was five days. As 3 of 35 anterior dislocations in persons under thirty-five years of age recurred and 4 became habitual, the author has tried treating all such dislocations in the last few months by applying Desault's bandage for a period of two weeks. The 4 habitual cases were operated on by Flaxsht's method with successful results. In the cases of the 20 patients over thirty-five years of age an abduction splint was applied either immediately or after three or four days if active elevation of the arm was not possible. Simultaneously exercises with horizontal and vertical rotation-traction apparatus were given several times. The average duration of treatment in the cases of patients over thirty-five years of age was forty-two days.

In the 24 cases of axillary dislocation without complications adhesive plaster traction was applied to the arm around an abduction splint immediately after reduction. Following the application of the splint a roentgenogram was taken at once to make certain that the head was in good position in the glenoid cavity. The abduction splint was not removed until the arm could be raised actively 90 degrees in the horizontal plane and placed behind the head and on the opposite shoulder. The total duration of treatment, that is, the time until work was resumed, averaged thirty-six days.

In the 25 cases of axillary dislocation with fracture of the tuberculum majus, traction and an abduction splint were applied immediately. In the cases of patients over forty years of age the average duration of treatment was twenty-six days, and in those of patients over forty years of age, it was seventy-eight days.

Paralysis never occurred in the cases of axillary dislocation, and developed in only 1 case of complicated axillary dislocation. It never occurred in patients under thirty years of age. As a rule it results only in dislocations with fracture of the tuberculum majus. Most frequently the axillary nerve was paralyzed. It was paralyzed alone in 5 cases, with the entire plexus in 1 case, with the radial nerve in 1 case and with the ulnar and median nerves in 1 case. Paralysis of the axillary nerve always disappeared after a few weeks.

The end-results depend upon the type of the injury. Of the 55 anterior dislocations reviewed, 34 were cured with normal mobility and strength. In 1 case, that of a patient fifty-one years old who had also a fracture of the border of the glenoid cavity, there was permanent partial limitation of motion. Of the 24 axillary dislocations without complications, the 10 occurring in patients under forty years of age were cured with normal strength and mobility. Of the 24 patients over forty years of age, 11 had equally

good results. Of the 28 axillary dislocations with fracture of the tuberculum majus, only 5 were in patients under forty years of age. Of the 23 patients over forty years of age, 15 have normal strength and motion. In 8, motion is limited, but in none more than by one-third of the normal.

Unusual cases observed included 2 of luxatio erecta and 1 of posterior dislocation. In all such cases cure resulted with full strength and mobility.

In summarizing the author says that in 96 cases (83 per cent of the total number), cure resulted with normal mobility and strength, in 5 (4.5 per cent), with limitation of motion amounting to less than one-third, in 7 (6 per cent), with motion limited one-third, in 6 (5 per cent), with motion limited one-half, and in 1 (0.9 per cent), with motion limited more than one-half. Of 55 insured patients, only 2 were granted permanent disability allowances.

(REGELE) FLORENCE ANNAN CARPENTIER

Sutro, C. J. Slipping of the Capital Epiphysis of the Femur in Adolescence. *Arch Surg*, 1935, 31: 345.

The author presents three cases of slipping of the capital epiphysis of the femur in which during opera-

tive correction sufficient bone was removed for examination. One case was that of a girl of eleven, one of a well-developed boy of seventeen, and one of an obese boy of twelve. Histological examination of the specimens removed showed no evidence of rickets, osteomalacia, or specific osteitis fibrosa, but did show what might be interpreted as a fracture through the epiphyseal plate and through some of the contiguous osseous trabeculae. For the most part, the upper epiphyseal plate showed only scattered foci of degeneration, usually close to tears or fractures of the epiphyseal cartilage plate. Blood pigment was usually present. The buckling of the plate plus the presence of herniated segments of the epiphyseal plate either into the epiphysis or into the metaphysis would tend to support the suspicion that trauma caused many of the microscopic observations.

The author discusses the anatomy and ontogenesis of the femur and the effect of abnormal weight-bearing forces. He feels that the normal tilting of the capital epiphysis, which is the result of normal development and mechanical forces, is the basis for the lesion. Photomicrographs and roentgenograms illustrate the article.

BARBARA B. STIMSON, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Friedlaender E.: Compression Treatment of Phlebitis (*Die Kompressionsbehandlung der Venenentzündung*) *Hann II* *Hefte* 1935 1: 79-818

The author calls to mind the Uana Fischer zinc paste bandages described in 1857 for inflammatory symptoms of thrombophlebitis of the leg, which acted by compression. He states that he uses zinc paste of the following composition: zinc oxide 150 gm, gelatine, 150 gm, glycerine 150 ccm, calcium hydrosulfide 20 gm, distilled water ad 1,000 ccm. As bandages, he employs strips of gauze 8 cm wide and 10 m long, with smoothly cut edges. Each layer of bandage is impregnated with the paste, and from two to four layers are applied. The bandage is closed with zinc paste and covered with tissue paper or a very thin layer of cellulose. Pre-impregnated bandages are not recommended.

In order to obtain the correct pressure which is often difficult a thromboxator bandage is used. Strips of bandage attached to a tight band are laid one upon the other shingle fashion. At their free ends the strips have from two to a fourteen buttonholes. The strips are directed posteriorly and as each fold is placed about the leg it is fastened at the proper buttonhole to the band with a small hook. To keep the bandage from sliding down on the thigh, it is equipped with two supporters which are attached to a girdle. The knee portion of the thromboxator consists of a band which adjusts itself to every movement. The bandage should always extend several centimeters beyond the thrombus. Compression treatment is indicated whenever suppuration or tumor does not prohibit it. Phlebitis and a temperature as high as 38 degrees C do not prevent this treatment, but large furuncles and phlegmons, such as open tuberculous processes and acute lymphangitis are contra indications.

After from eight to ten days the swelling of the limb has almost entirely disappeared, and standing may be permitted without danger. As a rule the treatment requires from four to eight weeks, during which time the patient is able to work. At the end of that period, both treatments are of advantage.

Of the 106 patients treated by compression, only 1 woman died of pelvic embolism. In 48 cases in which the thrombus was not limited by the inguinal ligament there was 1 death that of a patient with an inoperable carcinoma of the rectum. In the 106 cases there were no deaths from thrombosis of the leg or thigh and there was only 1 death from embolism from a pelvic thrombus. The average period of inability to work was seven and three quarters days but since March 1934 (because of the absence of

badly neglected cases), it has been reduced to one day. (Strassburg) LEO M. ZIMMERMAN, M.D.

Contades, K. J., Under G. and Naitson, J.: Experimental Studies of the Vascular Action of the Contrast Media Used in Arteriography (*Recherches expérimentales sur l'action vasculaire des produits de contraste utilisés en arthrographie*) *Presse med* 1935, 41: 1839

While arteriography has proved of definite diagnostic value, especially in arterial diseases, severe and even fatal reactions from the procedure have been reported. The authors have carried out arteriography with thorotrast and parabrodil in more than seventy cases without serious ill effects.

In experiments on animals they found that the intra arterial injection of lipiodol and similar products produced lesions of the arterial walls and thrombosis. With the use of organic iodine compounds and thorotrast no histological lesions of the arterial walls were produced. However the injection of these substances into the arterial system in pathological conditions of the arteries is not without danger. Animal experiments with substances which caused no arterial lesions—parabrodil and thorotrast—showed that the intra arterial injection produced vasomotor reactions shown by an increase in the general arterial pressure when parabrodil is used, a decrease when thorotrast was employed, and a slight increase in the venous pressure. These reactions were more marked in some of the animals than in others. It is to such reactions that the unfavorable effects of arteriography in some cases are to be ascribed.

The substances used as contrast media in arteriography have only a very slight vasoconstricting action *per se*. The vasomotor disturbances noted are to be ascribed to a double mechanism—as increased discharge of adrenalin and the local liberation of histamine substances. There would naturally be a wide variation in individual reactions to such contrast media as individuals differ in their sensitivity to both adrenalin and histamine. Moreover the amount of these substances liberated differs in different cases. The authors are carrying on further researches to determine the reaction of different individuals to these contrast media in order that the use of arteriography may be avoided in the cases of patients particularly susceptible to their action. (Auer M. Meyer)

Montgomery A. H. and Ireland J.: Traumatic Arteriovenous Arterial Aneurysm. *J. Am. M. Ass.* 1935, 5: 14

The authors report two cases of traumatic arteriovenous arterial aneurysm observed by them. (Lef)

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

an operation on the arm and briefly summarize forty two similar cases collected from the literature. In one of the cases reported by the authors occlusion of the brachial artery occurred immediately after a simple supracondylar fracture of the humerus. In the other it occurred after an open operation to reduce such a fracture. Absence of pulsation was demonstrated by operative exposure of the vessels, but no cause for the condition could be found.

As a rule the disturbances are confined to the large arteries of the extremities. Of the forty four cases reviewed they occurred in the femoral artery in sixteen in the brachial artery in thirteen in the radial artery in three in the popliteal artery in three, in the posterior tibial artery in three in the axillary artery in two in the external iliac artery in one and in the carotid artery in one. The causative factor in every case was a definite trauma. In twenty-six cases there was an injury due to a bullet or high explosive and in ten cases a fracture of the femur, radius, or humerus.

The manner in which trauma produces such striking vascular changes has been the subject of discussion. Because of the absence of pathological changes involving the artery and because of the complete return of circulatory function after a brief period the authors are of the opinion that the condition is an arterial spasm due probably to a nerve disturbance. They believe that a sympathetic nerve imbalance causes a spasmodic constriction of the artery.

The possibility of the occurrence of such a condition as vascular spasm is quite generally admitted. Makins found that in a certain proportion of wounds in close proximity to large vessels a diminution of normal caliber of the arteries is to be observed soon after the injury. Besides the evidence that sympathetic nerve involvement may cause arterial constriction there is evidence that somatic nerve involvement causes vascular changes. There is evidence also that not all vascular changes are under nervous control. Where local areas of blanching appear in skin that has been completely deprived of a nerve supply there may be a chemical factor that contracts the size of the vessel.

The diagnosis of the cause of arterial spasm following injury is very difficult without operative exposure of the artery. The authors suggest that measures used for diagnosis in other vascular diseases might be of value in traumatic segmentary arterial spasm.

The time of disappearance of the spasm is fairly uniform. In most of the cases studied the spasm disappeared in twenty four hours, but in one case it persisted to some degree longer than a year. The prognosis is good so far as life is concerned. Death that might have been attributed to the vascular condition occurred in only one of the forty four cases reviewed. In six cases amputation of a limb was performed because of gangrene.

Conservative methods of treatment should be

tried first. If a recent fracture or dislocation is present when the diagnosis of traumatic segmentary arterial spasm is most probable, the fracture or dislocation should be reduced, and if some other mechanical cause which might be responsible for obliteration of the pulse is found it should be removed. If there is then no return of the circulation the artery should be immediately exposed at the site of the trauma. In the cases reported by the authors the wounds were left open, continuous warm, moist dressings were applied, and the extremity was kept at rest and elevated until the spasm disappeared. The wounds were then closed by suture. The authors believe that one of the most promising methods of treating this type of peripheral arterial occlusion is that recently employed by Reid and his associates—intermittent increased and decreased air pressure by means of an air tight chamber applied to the extremity.

HERBERT F. THURSTON, M.D.

BLOOD, TRANSFUSION

Ritter A. Blood Replacement Under War Conditions (Bluter-satz in Feldverhaeltnissen) *Helvet. med. Acta* 1935 2 225

In a short historical review the author cites the difficulties in blood replacement by blood transfusion up to and during the time of the world war. These were due to lack of simplicity in the methods of transfusion and lack of knowledge of the technique of blood group determination by standard sera according to the method of Moss.

Ritter next discusses blood replacement by blood transfusion under peace time conditions in the military hospitals of Denmark, France, Germany, and Italy and under war conditions in the armies of Holland, France, Germany, and England. He states that today the problems of blood group determination and blood transfusion are well solved and blood transfusion to replace lost blood is possible even in the field.

When blood is not available, the use of the following substitute solutions comes up for consideration: physiological sodium chloride solution, Ringer's solution, normosal, a 5.4 per cent solution of glucose, tyrode solution, tufosin and pigofusin.

The author presents suggestions for the replacement of blood in the Swiss army. On the basis of the fact that an acute loss of one third of the entire volume of blood can be corrected successfully only by blood transfusion, cases of blood loss may be divided into the following three groups: (1) those in which filling of the vessels with a substitute fluid to make up for the lost blood is sufficient, (2) those in which it is possible to replace the lost blood with a substitute fluid only temporarily and a transfusion of blood must therefore be given soon, and (3) those in which life can be saved only by the immediate transfusion of blood.

Under war conditions cases of Group 3 are seen only exceptionally. In the other cases the more

simply and more quickly help is given, the better. The farther toward the front lines that the treatment must be given the more simple, handier and more practical must be the equipment in order that the necessary procedure may be carried out most easily and quickly. In very profuse hemorrhage, transfusion will always be too late. In moderate and smaller hemorrhages there will be time for hemostasis and transportation of the wounded to the dressing station.

As substitute fluids for use in the most advanced dressing stations only fluids already prepared such as tutocutan and plogtatin in ampoules of 250 c cm. come up for consideration. In the front line as, for example, during a rapid advance, the infusion of a substitute solution is practically the only method possible for the replacement of blood. Therefore only such fluids should be kept in the battalion dressing stations. When, in positions which are well entrenched and relatively stationary the front line dressing stations can be better built and equipped, it is possible to regenerate the instruments and supplies for more complicated procedures from the dressing stations in the rear. At the front, transfusions of blood are possible only in well-built battalion aid stations and surgical detachments which remain in the same place for some time. They can be carried out also in field and other military hospitals and military dressing stations in the rear.

Only group-identical blood from a healthy donor or blood from a healthy universal donor should be used for transfusion. As donors, other wounded men, especially those with slight wounds, are to be considered first. Therefore it is advisable that slightly wounded soldiers be kept in close proximity to the dressing stations in order that they may be readily available. The members of the military corps

should be employed as donors in only very exceptional cases.

The blood group of every recruit should be determined in the training schools. At the same time serological tests for syphilis should be made. The findings should be recorded in the service record and on the identification card, and the blood group should be tattooed on the recruit's chest or upper arm. In later schools and courses the findings should be checked if possible.

Before each transfusion the biological test of Oehlecker should be carried out. If hemolysis occurs because of a mistake in the blood grouping it should be combated by the immediate transfusion of blood known to be of the same group. In the textbooks for the military corps there is a chapter which clarifies the whole subject of blood transfusion. In the schools and courses, sanitary corps officers, non-commissioned officers, and privates should be instructed with regard to blood transfusion under war conditions. In the review course the subject should be repeated. In the schools for men who are exempt from active military service all participants in hospital activities should receive similar instruction. It is also desirable for the school and company doctors to give instruction in the use of the various instruments necessary.

The blood-transfusion apparatus of Jabé and the method of Bécart are suitable for use under war conditions. The apparatus of Glanbernata is also handy for the direct method. For the indirect methods the author recommends the apparatus of Mercke with the use of sodium citrate solution.

In conclusion he gives a list of the materials needed for the battalion, dressing station, sanitary company, ambulance, surgical detachment, and military hospital, and for school and permanent doctors. (TOWNS.) FRANK SHARPES, M.D.

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE, POSTOPERATIVE TREATMENT

Webster, J P Deforming Scars *Pennsylvania M J*, 1935, 38 929

The prevention and treatment of deforming scars should concern not only plastic surgery, but all branches of surgery. The mental, social, and economic effect of a deforming scar must be considered. The patient remembers a surgical experience by the resultant scar and is gratified by an inconspicuous one. Scars may be congenital or acquired. Acquired scars are caused by infection or trauma, including surgery and burns from heat, chemicals, electricity, or irradiation. The degree of deformity depends upon the extent of the injury and infection as well as the location. Normal healing is characterized by contracture often resulting in ectropion of the eyelids or lips or limitation of motion of the extremities.

The surgeon can often reduce scarring to the minimum by placing his incisions in the most favorable direction as indicated by wrinkle lines or the skin-tension lines as plotted by Langer in 1861. Scars contrary to skin tension are prone to spread. Limitation of trauma to the minimum in the handling of tissues is important for good healing. Avoidance of tension and early removal of skin sutures reduces scarring. As dark-colored foreign material included in a scar later shows up as a bluish mark, all foreign matter must be carefully removed from fresh wounds. Anatomical replacement of injured parts is best, but, if this is impossible, early covering with a pedicled or free graft will limit scarring. Contracture limits motion and retards development. Webster mentions a number of procedures applicable to various conditions, citing especially the treatment of keloid by combined surgery and irradiation.

THOMAS W STEVENSON, JR., M D

ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Lindemann, A, and Hofrath, H The Primary Care of Injuries of the Face in the Region of the Mouth and Jaws (Die primäre Versorgung der Verletzungen im Mund-Kiefer-Gesichtsberreich) *Deutsche Zahnärztliche Wochenschr*, 1935, p 932

Primary suture of a wound about the mouth or jaws should be done only during the first few hours and only in exceptional cases as it usually must be opened. In wounds of the mucous membranes conditions are different, and a few temporary sutures may be introduced to hold the parts in place. However, if the maxillary bone has suffered or the accessory nasal sinuses have been opened, this is contraindicated. An injection of tetanus antitoxin should

be given. Hemostasis may require ligation of the afferent artery. If there is danger of obstruction of the respiratory passages by falling-back of the tongue, intubation or tracheotomy should be done. In cases of injury of the esophagus, an esophageal or nasal sound should be introduced for feeding.

Primary orthopedic care of the mandible. For the posteriorly displaced middle piece, Hauptmeyer's method should be used. A spring wire bow or wire sling is attached to a cap on the head of the injured person (extension bow), and the middle piece is grasped by a dentally applied lateral ligature. When the mandible is edentulous, a bone hook in the form of the Bruhn extension hook is introduced into the chin portion from below backward, through an incision in the skin fold of the chin. If a sufficient number of teeth are present in the lateral portions of the jaw, a modification of the Sauer temporary dressing is used. A strong wire bow is fastened to the lateral portions. Then the dentate middle piece of the mandible is fastened to the tractor by wire loops. In this way the backward dislocation is relieved, but not the vertical dislocation. The latter is gradually corrected later by means of rubber bands attached to a similar dental splint on the upper jaw. Extra-oral dressings such as chin bandages and circular dressings around the head are contraindicated as they do not prevent dislocation.

The upper jaw. When the mandible is uninjured and contains teeth, the treatment of complete fractures of the maxilla presents few difficulties. Wire bows are used also for these. The pressure pieces are then "articulated" by the bite. Later, intermaxillary rubber bands may be used. A chin bandage is of aid.

Simultaneous fracture of the upper and lower jaws. The authors use a head cap (made by themselves) of soft leather or firmly woven material. For the attachment of the rubber bands small hooks or patent pants buttons are sewed in at the sides. In the preparation of the upper jaw dressing a long piece of the described hook wire is first bent to lie directly along the teeth and then turned back in the region of the last molar and, as in its further course it lies along the first wire bow or the row of teeth, respectively, it is led out at the angle of the mouth. The two outer wire bows should extend posteriorly to about the ear and run about parallel with the plane of the bite. By means of thin ligature wire the splint is tied to the teeth and, if possible, to all of the teeth of the maxilla. By means of the hook wire the fragments of the mandible, all large pieces separately, are splinted in the manner described. Then, rubber rings between the maxilla and mandible and stronger rubber bands are stretched from the outer wire bow of the maxillary splint to the

head dressing. The usual circular bandages for support of the soft parts which have been separated from their attachments should be abandoned for aluminum pad dressings. The latter permit cleansing of the wound and open wound treatment. They also take the place of skin sutures. The pliable pads should be from 0.5 to 0.75 mm. in thickness, covered with gauze, and supplied with bands. Possibly two pads may be required. They may be applied also within the oral cavity as shields for the oral box.

The splints, dressings, and instruments are shown in illustrations. The complete set of instruments for an army surgeon consists of ligature wire, splint wire with small hooks 2.5 mm. thick, a ring with screw cannules, the shears, wire shears, a small forceps for bending the bows, a punch and, for some cases, a small soldering iron with petrol, a girde band, rubber bands, and rubber straps.

(FRANK) LOUIS NEUWELT M.D.

Redwitz, E. von.: *The Treatment of Accidental Injuries and Its Scientific and Clinical Bases* (*Die Behandlung der Gelegenheitsverwundungen nach ihren wissenschaftlichen und klinischen Grundlagen*). *Med. Woch.* 1935 pp 555-640.

In defining primary infection the author supports the view of Læwen that the transference of bacteria from the neighboring skin and the clothing immediately after the occurrence of a wound and also secondary infection produced by bandages, touching with the hands, and contact by the probe, must be taken into consideration. The part played by the latter in the pre-antiseptic period is shown by the mortality of from 38.6 to 71.4 per cent.

Accidental injuries are always infected primarily, usually with a mixed infection. This is true also of war-time gunshot wounds. Læwen, Schoene, and Hlansen found that, of 70 fresh gunshot wounds, 67 contained bacteria. The number and virulence of the bacteria play as important a part in infection as the resistance of the injured person and the character of the wound. Cultivated bacteria always have a more severe effect (injuries to physicians, pitchfork injuries) as was demonstrated by the experiments of Schummelbeuch and Friedrichs. A period of eight hours is too short for primary excision of the wound, especially in injuries sustained in the coal mining regions (Mangnus). The teachings and development of war surgery are presented with historical data (Ambrose Paré, Curry Custer, Piroff von Esmarch, and von Bergmann).

The dictum of von Bergmann that routine treatment must be given first place in the field seems to have been completely refuted by the world war as the numerous infantry wounds and the predominant severe grenade injuries produced entirely different wounds. However von Bergmann did not ask routine treatment for these, but demanded it for the large-caliber wounds produced by infantry bullets and shrapnel balls. And for these, the von Bergmann routine technique is still correct since the world war.

The world war and postwar experience have taught that operative debridement without abortive chemical treatment of the wound may yield very good results. For example, Felsenreich obtained successful results in from 60 to 98 per cent of 2,000 accidental wounds. Therefore in war light dressings was not rejected (Carrel-Dekla fluid and many other remedies).

Next to tincture of iodine and iodine chloride, chinolia von Redwitz found that hypochlorite solution la Braun's ampoules was most satisfactory when it, too, was used the first six to eight hours. Clairmont also, cuts around the infected wound and follows this procedure by chemical disinfection with a 5 per cent iodine-alcohol solution and primary suture. He achieved primary healing in 90 per cent of wounds on the head and from 50 to 60 per cent of wounds on the extremities. For the present, deep antiseptics may be considered a failure. Whether electrosurgical treatment of wounds has any advantages over cutting with the knife or scissors is still a moot question as regards disinfection by cauterization. Routine treatment must also be further developed under the changed conditions of war surgery as this is the basis of the great educational value of von Bergmann's teaching. Tetanus prophylaxis must be administered with discrimination. Judgment regarding the polyvalent antitoxic, prophylactic anserine serum is as yet impossible. Aschmann's rules for the treatment of wounds are praised. Von Redwitz concludes that, after emergency bandaging, the wounded must be placed under the care of the surgeon. Nothing would be more unfortunate than for the freedom of individualization in wound treatment to result in the polytypism of the anasthetist.

(FRANK) LOUIS NEUWELT M.D.

Wilson, W. C.: *Extensive Burns and Scalds*. *Lancet* 1935, 43: 177.

The author divides the clinical course of an extensive burn into the following five stages: (1) initial shock, (2) secondary shock, (3) acute toxemia, (4) septic toxemia, and (5) healing. It should be remembered that the course is variable, that the distinctive features of any of the first four stages may be absent, and that the stages may overlap.

It is important to differentiate between initial and secondary shock of burns. Initial shock tends to disappear spontaneously and is rarely serious. Secondary shock is a progressive and dangerous condition which requires active treatment. Effective treatment is available. Acute toxemia of burns is not caused by concentration of the blood, fluid loss, early bacterial infection, chemical changes in the blood, or a combination of these factors. Evidence has been brought forward in favor of the view that it is the result of the action of circulating toxins which have been formed at, and absorbed from, the burned area. The main action of the toxins is on the liver cells. Toxin formation in burned tissues is accelerated and augmented if micro-organisms are present. The suggestion is made that organisms may

produce non-specific toxins from devitalized tissues. There is evidence that toxin formation occurs in tissues which have been devitalized by injury other than heat, such as trauma.

The author uses a 20 per cent solution of tannic acid in the treatment of the wound, applying it in one dressing. He advocates the addition of an antiseptic such as acriflavine (1:1,000) to the tannic acid solution or the use of 1 per cent gentian violet immediately after the application of the tannic acid. He states that there is much to be said in favor of a specially equipped "burn ward" with a staff trained in the nursing of cases of burns.

STANLEY J. SEEGER, M.D.

Meyer, G. A Critical Discussion of Methods of Treating Furuncles from the Theoretical Point of View (*Kritik der Furunkelbehandlungsmethoden vom theoretischen Standpunkt aus*). *Beitr. z. klin. Chir.*, 1935, 162: 163.

After briefly reviewing the vital processes in normal connective tissue and connective tissue attacked by living foreign bodies as revealed by the findings of recent investigations, Meyer discusses the processes occurring in the tissues in the presence of a furuncle, staphylococcosis of the corium. He states that subcutaneous healing of a neglected furuncle is very rare. As can be determined from a study of sections, the healing is brought about by foci of resistance to the advance of the necrosis except in the direction of the nearest surface point. Toward the surface the necrosis advances unhindered to the unprotected epithelium, where it soon terminates in expulsion and healing.

Meyer next discusses critically the methods of treating furuncles. These are (1) percutaneous treatment from the surface, (2) treatment through the surrounding tissues without exposure of the furuncle, and (3) incision into the furuncle.

Surface chemotherapy in all its forms (poultices, packs), applications of cold and heat, and the Wassermann local percutaneous treatment with staphylococcal extracts have rendered it doubtful that furuncles can be influenced through the intact surface. Moreover, theoretical bases for this type of treatment are lacking.

First among methods of treatment which attack the focus subcutaneously is Bier's hyperemia. However, this has not weakened the considerable theoretical doubts regarding these methods. D'Herelle's bacteriophage also appears not to have fulfilled the promises made for it. Deep roentgen irradiation can, of course, exert an effect on the tissues without injury of the skin. However it is certain that the process of nuclear segmentation which is essential for cell multiplication is disturbed or prevented by the roentgen rays. This is true especially of the formation of mitotic figures, which plays a rôle in the protective struggle of the connective tissue. Therefore, this treatment may possibly do much more harm than good, especially in furunculosis with an unfavorable situation such as the lips or

face. The Laeven injection of autogenous blood represents an attempt to wall off the furuncle with blood cells while leaving the skin practically intact. However, this procedure is rendered dangerous not only by the dead erythrocytes which act as a culture medium, but also, and to a greater degree, by the demand made on the protective cells to remove the dead cells which have become foreign bodies. Moreover, from the theoretical standpoint, the faulty preservation of the tissues surrounding the furuncle and their veins in the technique recommended by Laeven must be characterized as obsolete.

Surgical treatment has the advantage over all other methods in that it attacks the evil at the root. However, this is done only when a methodical attempt is made to render the toxin-secreting coccal focus harmless as quickly as possible. This is accomplished with certainty only when, under guidance of the eye, the grayish-white induration, which reveals the necrosis, is opened and, without unnecessary injury of the surrounding tissues, is removed or sectioned. The essential of the minor procedure is immediate diversion of the fluid stream carrying the toxins and bacteria. Working in the "normal" or protective zone is basically incorrect. This old method has been "improved" with doubtful success. Destruction of the coccal focus with the galvanocautery and the older cauterization methods produce deep necroses and do not assure sufficient drainage.

Riedel's incision which undermines the furuncle and attacks it from below and the tip incisions have not proved successful.

Meyer emphasizes a rule that must be observed especially in the treatment of furuncles of the lips—namely, that pressure and roughness must be avoided both in making the incision and in the infiltration of the anesthetic. Drainage may be established with cambric, but not with gauze.

Of the objections against early operation, the only one worthy of consideration is that a furuncle which throws antigens into the blood stream renders the body immune to the staphylococcus for a certain length of time. However, the findings of the investigations of Aschoff and Klinge have proved that nodules in the heart, joints, and elsewhere often have their origin in multiple furuncle formations.

Meyer regards early operation as the only correct treatment, and believes that general treatment is superfluous. (DUMONT) CLARENCE C. REED, M.D.

Blomberg, H. von, and Forster, S. von. The Treatment of Septic Diseases by Artificial Abscess (*Ueber die Behandlung septischer Krankheiten mit dem kuenstlichen Abscess*). *Muenchen med. Wchnschr.*, 1935, 1: 783.

So long as it is not possible to obtain differential indications for the method of treatment of septic diseases and to apply specific therapy, non-specific treatment must be given the preference, and the artificial abscess best fulfills these requirements.

A strictly subcutaneous injection of from 1 to 2.5 c.cm. of sterile oleum terbinthina is made on the

lateral aspect of the thigh. The strength of the desired reaction is often in direct relation to the dose injected, not less than 1 c.cm. and, in cases with poor reacting capacity as much as 3 c.cm. may be given. The irritating substance gives rise to the formation of an area of breaking down which is often rather large, and usually after from two to three days a doughy softening occurs. However, the opening of the abscess should be delayed until the elevated leucocyte count in the blood has started to fall, which will be usually on the tenth day. The abscess is opened by a puncture incision in the lateral lower border. The wound should be well drained and left open till healing from within has taken place. If the abscess has developed well, the temperature starts to fall by 1/2° immediately and in about four days reaches normal. If, on the other hand, there has been no important rise of temperature before hand, the fever curve rises steeply for three or four days.

At first, this turpentine abscess was employed only as the last remaining possibility in cases that appeared already unfavorable. The abscess was successful in septic infections in which an accompanying parenchymatous injury to the liver and kidneys contra-indicated intensive chemotherapy. Good curative effects were obtained also in septic infections originating in the throat, even when metastatic suppurative foci had already appeared in distant parts of the body. Healing was obtained with the turpentine abscess in a case of agranulocytosis. In a number of cases the turpentine abscess was used too late, but there was no objective aggravation of the condition because of the establishment of the turpentine abscess. In viridans infection and in severe endocarditis no benefit was obtained from the turpentine abscess even when it was established sufficiently early and developed satisfactorily. Likewise in two cases of lymphatic leukemia the procedure was unavailing.

The prognosis could be judged according to whether and how the artificial abscess developed. If it developed well the method was always a success. There were twenty-seven cases. Three of the patients died, and in none of these did the abscess develop. Of the remainder, twenty-three were cured or greatly improved. The leucocyte curve showed a typical reaction. If the abscess ran a proper course there was an immediate marked increase in leucocytes which ceased after three days with a simultaneous diminution of the shift to the left and of the granulocytes and an increase of lymphocytes. The subjective improvement was rapid and set in often as early as the second or third day. The patient feels very hungry. It is clear that the normal defense functions are powerfully stimulated. The pus obtained from the mature abscess always consisted of leucocytes and their debris. The number of macrophages was increased in every case. In patients with disorder of the blood, the histiocyte elements predominated in the abscess pus. If the abscess acts favorably on the disease in the usual forms of sepsis,

the pus is creamy and yellow. If the abscess does not develop well, in blood diseases and in endocarditis lenta, the pus is thin, silty and green. An infection of the turpentine abscess with the organisms of the existing sepsis was never observed. In patients with phlegmons, a severe suppurative reaction occurred, after the development of a turpentine abscess, in the wounds which had been secreting a turbid ichorous fluid. The cellular defense functions, as well as the humoral properties, are enormously increased by the artificial abscess.

A cautiously dosed blood transfusion in connection with the induction of a turpentine abscess was a favored method of treatment. The abscess provides valuable protection against recurrence. Injections of purified turpentine preparations, such as clostridia, cannot take the place of the abscess in severe cases. Sensitivity to turpentine is rare. It may also be possible that the turpentine itself plays a part in the healing of septic processes.

(Elsie Hagemer). FLORENCE ANGLA CASPARY.

Gage, M., and DeBakey, M.: Tetanus and Its Treatment. *Am J Surg* 1935, p. 157.

Gage and DeBakey state that the mortality of tetanus today is only slightly lower than the mortality of the condition in the pre-antitoxin era.

The incidence of tetanus is inversely proportional to the degree of prophylaxis instituted. With regard to the etiology and pathogenesis of the disease the authors call attention to the occurrence of the tetanus bacillus in manured soil, the gastro-intestinal tracts of animals, and woolen clothing. They state that tetanus most frequently follows puncture wounds as wounds of this type furnish the requisite for growth of the organism, namely denaturation of tissue anaerobic conditions, the presence of a foreign body and the introduction of pyogenic bacteria which bear a symbiotic relationship to the tetanus bacillus. They believe that the length of the incubation period depends upon whether spores or living bacteria were introduced into the wound. The tetanus bacillus remains in the wound and its contents are absorbed by the lymphatics. From the lymphatics they enter the general circulation and are carried to the neuromuscular endplates, how they ascend the motor nerves to the cord and the brain. Pathologically there are no specific lesions.

The prognosis probably depends upon the incubation period, the virulence of the organisms, whether toxic free spores or vegetative forms are present, the severity of concomitant pyogenic infection, the nature and severity of the convulsions, the time at which active treatment is begun, and the presence or absence of antitoxin in the blood.

The authors emphasize the importance of thorough prophylactic care. As treatment they advise careful debridement of the wound under regional or general anesthesia. They caution against the use of local infiltration and any form of curetomy. They believe that the first dose of antitoxin should be given at the time of the operation. They usually

give 60,000 units of antitoxin intravenously and 20,000 to 40,000 units intramuscularly at the time of the patient's admission to the hospital and then daily doses of from 10,000 to 20,000 units depending on the reaction and the severity of the condition. The intrathecal route is not used.

They review the various drugs that have been employed, but believe that avertin is the drug of choice and its administration should be repeated as often as necessary. Fluids and food can be administered easily with a duodenal tube. The fluid intake should be from 3,000 to 4,000 c.cm daily. The authors use transfusions frequently, especially transfusions of unmodified blood.

They report fifteen in which there were three deaths.

HARVEY S. ALLEN, M.D.

Clarenz, F. M. A Study of Forty Cases of Tetanus at the Surgical Clinic of the University at Giessen, with a Contribution to the Subject of the Changes in the Spinal Column Following Tetanus, and a Statistical Study of the Deaths from Tetanus in the Province of Oberhessen in the Period from 1923 to 1932 (Beobachtungen ueber 40 Faelle von Tetanus aus der chirurgischen Universitaets-Klinik zu Giessen nebst Beitrag zur Frage der Wirbelsaehlenveraenderungen im Anschluss an Wundstarrkrampf und einer Statistik der Tetanustodesfaelle der Provinz Oberhessen von 1923-1932). 1935. Giessen, Dissertation.

The author first discusses in great detail the unequal geographical distribution of tetanus. Although it may be concluded that the geological formation and the character of weathering and decay does not have very definite significance, nevertheless, the author believes that it would be a meritorious although enormous task if an extensive study of the soil of the whole of Germany be made. This could be done in coöperation with the German Geological Institute, and the results brought together into a general statistical compilation. Of greater importance in the distribution of tetanus are the geographical conditions resulting from the meteorological influence (sunshine, the temperature of the air, humidity) and, of course, the density of population must also be considered. The author points out the fact that in workers employed close to the soil tetanus bacilli are found in the stools in from 39 to 40 per cent, while in the rest of the population they are present in only from 5 to 6 per cent. In spite of the progress in hygiene, prophylaxis, and antiseptics, the Madelung statistics for the world war show that the cases of tetanus amounted to 0.66 per cent, and the increase to 1 per cent toward the end of the war was apparently caused by slackening of the care in the prophylaxis (Berard, Sonntag).

Reports of tetanus following operations are not rare. In this connection the author cites two case histories from the surgical clinic at Giessen. Since attacks of tetanus following aseptic operations on the foot are possibly caused by foci of tetanus spores within the skin of the sole, prophylactic serum injection is to be recommended in every case of this kind.

(Stoebel, Koenigswinter). Buzello goes even further than this and recommends the injection of prophylactic serum before all operations on the intestine. According to these statistics there should be an increased incidence of tetanus in those employed close to the soil. Experience at the clinic in Giessen substantiates this. Also, in the cases of tetanus following machine injuries the machines have never been found to be "soil-sterile." Clean machine injuries are seldom the cause of tetanus. In every case of injury inquiries must be made as to the patient's actions after he was injured.

Although the neglect of prophylactic serum injection for tetanus has been regarded as malpractice, the author states that today the opinion is held that even prophylactic injections have rigidly delimited indications. The chief indication for prophylaxis is the relative frequency of the affection in the geographic district where the accident occurs (Loewe, *Med. Welt*, 1932, No. 51). The most dangerous lesions are the small and insignificant lacerations which are not heeded as a rule, and then come too late with fully developed symptoms under the care of the physician. The author recommends that the population be educated with regard to this disease. In relation to the use of antitoxins, permanent immunity by means of vaccination, he cites the work of Zoeller.

The shorter the period of incubation, the more severe the course of the disease will be found and the poorer its prognosis. For the first, second, and third weeks after trauma, statistics of the Strassburger Lazaret (Kuemmel-Madelung) show a mortality of respectively 90, 50, and 32 per cent. The corresponding figures for the clinic at Giessen are 92, 3, 76, 9, and 14, 3 per cent. Although treatment with serum after tetanus has developed does not promise very much, yet it should not be generally discarded (Buzello, *Zentralbl. f. Chir.*, 1923, 1928, and 1929). The good results of Laewen in the treatment of tetanus with avertin narcosis are well known. In the clinic at Giessen a lowered mortality after the introduction of avertin narcosis was not observed. Treatment with magnesium sulphate and other media has been tried with varying success. It is doubtful if larger amputations would help any. In discussing the changes in the spinal column following tetanus, the author cites the work of Zuckschwerdt and Axtmann (*Deutsche Zeitschr. f. Chir.*) and reports six case histories from the clinic at Giessen. The spinal-column findings were abnormal in all of the cases.

(GERLACH) JOHN W. BRENNAN, M.D.

Ghormley, R. K. Gas Gangrene and Gas Infections. *J. Bone & Joint Surg.*, 1935, 17, 907.

The diagnosis of gas infections must depend not only on the physician's sense of judgment of clinical findings, but on the laboratory aids as well. In the order of their importance, these diagnostic aids would be about as follows: pain, swelling, elevation of the pulse rate, bacteriological findings, discoloration, the presence of crepitus in the tissues or of gas

in the exudate (not constant); a bad odor which is said to be characteristic, but is not constant elevation of the temperature and the presence of gas bubbles in the roentgenogram of the affected part.

Ghormley would divide the treatment into four phases as follows: (1) recognition, (2) serum therapy (3) surgery and (4) dressings.

The first thing once the diagnosis is established is to give gas-gangrene antitoxin in therapeutic doses. For the most effective administration the intravenous method is best for reaching the affected tissues. In Ghormley's cases an average of two doses was given in each case, and in many instances the intravenous dose was followed in a few hours by an intramuscular dose. It is questionable how many doses are necessary.

The total results indicate a mortality of 45.3 per cent. This is somewhat below the percentage in the World War. Excluding the group of patients with abdominal involvement, most of whom were hopelessly ill and with four of whom the condition was not diagnosed as such but was recognized at necropsy the percentage who recovered on use of the antitoxin is high. Others have reported similar results with the use of antitoxin. In general it may be said that, with recognition of the condition and a judicious combination of the use of antitoxin and surgery a mortality of approximately 15 per cent may be expected.

As far as the prophylactic use of the antitoxin is concerned there is little opportunity to give any worth while figures as yet. In the present series one patient had only prophylactic doses of antitoxin, and it was felt that the infection was much mitigated by use of the antitoxin.

The author concludes that gas gangrene and gas infections must be diagnosed early if good results are to be obtained. The multiplicity of anaerobic organisms, with variation in the clinical picture, must be remembered. With the judicious use of polyvalent gas-gangrene antitoxin and surgery the mortality in such cases should be reduced to approximately 5 per cent.

ANESTHESIA

Torall, R. M.: Methods of Producing Anesthesia for Operations on the Neck. *Surg Clin North Am* 1935, 5 577

For many operations on the neck regional anesthesia is satisfactory. Certain conditions may contraindicate the use of regional methods for instance, during the final stage of excision of a thyroglossal duct cyst it is frequently necessary for the surgeon to insert his finger into the patient's mouth in order to identify structures at the base of the tongue. A conscious patient does not tolerate this maneuver well. In cases in which the duration of operation is long and the patient is likely to become restless, general anesthesia is indicated.

If labial anesthesia is decided on, it is essential to employ a method of administration that will

provide an adequate airway and at the same time insure against encroachment on the operative field by the anesthetic. Except for short and minor procedures in which the face mask does not interfere with the surgeon, intratracheal anesthesia best meets these requirements. In this method, by bringing the anesthetic agent directly to the target bronch and by driving out the expired gases, that part of the "dead space" represented by the mouth, pharynx, larynx, and trachea is eliminated. Close contact of mixtures ordinarily irritating to the mucous membranes of the same structures is not permitted, and the production of mucous is inhibited. Lavage of the trachea by infectious foreign material from the pharynx may be prevented. The method permits constant control of the depth of anesthesia; the surgical stage can be maintained with minimal amounts of ether, nitrous oxide, ethylene, or cyclopropane and encroachment on the field of operation need not occur. For operations on the spinal cord the method is particularly warranted because the prone position makes ventilation difficult under other methods of general anesthesia. The method is to be preferred to the regional method because the patient is protected against painful stimuli produced by the posterior roots are disturbed. The intratracheal method is applicable to radical gland dissection or the removal of a thyroglossal duct cyst. Removal of a mixed tumor of the parotid gland may be accomplished satisfactorily when the patient is anesthetized by the intratracheal method.

"Paravertebral block is a term applied to a method in which anesthesia is produced by distributing the anesthetic solution close to the vertebral column, in the region at which the nerves emerge from the intervertebral foramina. The needles through which the fluid is injected may be inserted through the structures of the neck lying lateral to the transverse processes or through them lying posterior to the transverse processes. The lateral route is employed when the operative procedure is to involve anterior or lateral structures of the neck, and the posterior route is employed for such operations as laryngectomy.

For the cervical block the patient lies with his face downward, his chest supported on pillows, and his head bent forward until his forehead touches the table. A wheel is raised 5 cm. lateral to the median line, on either side opposite the spine of the second cervical vertebra. Intracutaneous injection is continued from these points on either side of the median line as far as it may be necessary to block. A 30-mm. needle is introduced through the wheel first raised and inserted anteriorly and laterally until the point impinges on the lateral aspect of the vertebra. The needle is then withdrawn until its point is in subcutaneous tissue. It is then re-introduced a little more obliquely and inserted 1 cm. beyond the point where the needle was last felt gliding along the lateral aspect of the vertebral arch. Proximal 5 cm. of a 1 per cent solution is injected, care being taken that the deposit is not made intravenously. This pro-

cedure is repeated on the opposite side. When all the needles are in place the anesthetist is confronted with two lines of needles, the shafts of which cross the median line. The needles may then all be withdrawn and the space between each two points of insertion connected with the one above and below by the injection of a 0.5 per cent procaine-epinephrine solution. The injection is both dermal and subcutaneous, and is carried down to the level of the transverse processes. A similar injection is made to join the wheals opposite the spine of the second cervical vertebra. If the infiltration has been done with cold solution, the duration of anesthesia will be sufficient for an exploratory laminectomy or the insertion of a bone graft.

For deep cervical block by the lateral route the patient lies on his back on the table and his head, well turned toward the side, is supported by one thin pillow. The tip of the mastoid process is palpated and a wheal raised a finger's breadth below it and near the posterior border of the sternocleidomastoid muscle. Next, the external jugular vein is compressed at a point just above the clavicle. The vein is made to stand out in this way and the point at which it crosses the posterior border of the sternocleidomastoid muscle is noted. A second wheal is raised 1 cm posterior and 1 cm cephalad to this point. The upper wheal represents the point of insertion through which the second cervical nerve may be blocked. The needle used to block the fourth cervical nerve is inserted through the lower wheal. In order to block the third cervical nerve a needle is inserted through a wheal raised midway between the two. When the anesthetist injects the right side he stands at the head of the table and when he injects the left side he frequently moves so that he stands facing the left side of the neck. An 80-mm needle is inserted through the upper wheal. At the same time the forefinger of the hand which is not holding the syringe is used to palpate the tip of the transverse process of the sixth cervical vertebra, which is usually prominent. The needle is directed downward, inward, and backward until bone is encountered. It must be remembered that the tips of the transverse processes lie near the skin. Because of danger of entering the spinal canal the needle must never be inserted directly inward. It is an aid to aim the needle in the direction of the finger which is palpating the tip of the transverse process of the sixth cervical vertebra. Fifty-millimeter needles are inserted through the second and third wheals, and the bony landmark is encountered if the same general method of search is employed. Through each of the three needles 10 c.c. of a 1 per cent procaine-epinephrine solution is injected in divided doses after aspiration for blood and spinal fluid has been carried out.

Superficial cervical block constitutes the second line of defense in the induction of anesthesia for any major surgical procedure on the neck. Twenty cubic centimeters of a 0.5 per cent procaine-epinephrine solution are used and should be injected subcu-

taneously and subfascially over the sternocleidomastoid muscle.

To complete the establishment of regional anesthesia, it may be necessary, for certain operations, to infiltrate certain areas. Thus, if the submental and submaxillary glands are to be removed, it is necessary to infiltrate a 0.5 per cent procaine-epinephrine solution along the angle of the jaw and to inject the floor of the mouth in several areas, 5 c.c. of a 0.5 per cent solution being injected with each thrust.

For laryngectomy or thyrotomy it is necessary to block the superior laryngeal nerves and infiltrate on either side of the line of incision. To block a superior laryngeal nerve the interval between the hyoid bone and the thyroid cartilage is found. A needle 50 mm in length is thrust through the skin over this area to a depth of 1 cm. Five cubic centimeters of 1 per cent procaine-epinephrine solution are injected slowly, and then a similar injection is made on the opposite side. If a stoma has been made previously by tracheotomy, this injection is without danger, but if a tracheal stoma is not present the needle may be thrust too deeply and the point becomes submucosal. Injection of solution in this situation may produce an edematous bleb within the larynx, converting a partial obstruction into a complete one. If, during the injection, the patient complains of difficulty in breathing or has an attack of coughing it is well to discontinue the injection and partially to withdraw the needle before beginning the injection again. To complete the block for laryngectomy and to provide anesthesia of sufficient duration, it is necessary to infiltrate intradermally with a cool 0.5 per cent procaine-epinephrine solution at a point in the median line near the tip of the chin and from that point along lines which diverge, either side of the median line, until the wings of the thyroid cartilage are reached. From the wings of the thyroid cartilage, infiltration extends downward, on either side of the median line, until the medial ends of the clavicles are met. Following this type of preparation the larynx may be removed without causing undue pain. It is necessary for the surgeon to infiltrate the tissue between the larynx and esophagus in order to desensitize twigs from the vagus nerves. Ten cubic centimeters of a 0.5 per cent procaine-epinephrine solution on each side are sufficient for this purpose. Unilateral deep and superficial blocks are particularly useful for the excision of a diverticulum of the esophagus or for the ligation of an external carotid artery, preliminary, for example, to destruction of an extensive lesion of the tongue by diathermy. For these operations, involving one side only, infiltration of the median line is advised in order to establish a definite line of demarcation between anesthetized and sensitive regions. For the excision of cervical lymph nodes or for tracheotomy, anesthesia may be produced by field block or infiltration.

For operations on the thyroid gland it is seldom necessary to employ complicated methods of blocking to obtain anesthesia. Bilateral superficial

cervical block is produced by infiltrating the subcutaneous tissues over the sternocleidomastoid muscle on each side with 10 c.c.m. of a 1 per cent procaine solution. Epinephrine is omitted. The skin and subcutaneous tissue in the line of incision and in the region of the flap that is to be resected are infiltrated. From 60 to 80 c.c.m. of a 0.5 per cent solution of procaine is usually sufficient. Bartlett and Bartlett have advised blocking the descendens hypoglossi nerves which supply the ribbon muscles. This may be done by injecting subcutaneously 5 c.c.m. of a 2 per cent solution of procaine immediately anterior to the anterior border of each sternocleidomastoid muscle, at its midpoint. With this type of injection it is usually necessary for the surgeon to infiltrate the region of the superior pole of the thyroid gland as it is approached. The alternative method is to give the patient gas during the short interval of intervention in this region. Provided adequate preliminary medication has been administered, a high concentration of oxygen in the mixture may be maintained without interfering with the character of the inhalation anesthesia.

Rowbotham, S.: Cyclopropane Anesthesia: A Report Based on 254 Cases. *Lancet* 1923, 229 110

Cyclopropane is a gas which is heavier than air, insoluble in water and very soluble in lipoids. In mixtures with air or oxygen in the proportions employed for anesthesia it is explosive. Hence its use with the cautery or for diathermy is definitely contraindicated. It has a pungent smell, but is non-irritating in low concentrations.

Rowbotham reports its use in the cases of 250 patients. In most cases he gave premedication with 1/30 gr of morphine per 4 lb of body weight, but occasionally administered nembutal or evipan intravenously. The carbon-dioxide absorption technique was employed, but usually not until after induction in order to obtain the benefits of increased respiration. As a rule use was made of a simple apparatus consisting of a well fitting mask with Clausen's harness, a 2-gal rebreathing bag into which soda lime was put when necessary and a glass flow meters which were especially graduated to measure up to 1 liter of gas in multiples of 50 c.c.m. The bag was filled with oxygen, the face piece firmly applied, and the cyclopropane then run in at the rate of 250 c.c.m. per minute. In one minute the rate was

increased to 500 c.c.m. or more as needed. The oxygen flow was then adjusted to about 250 c.c.m. per minute, and in from one to five minutes the cyclopropane flow could be completely stopped. Occasionally full muscular relaxation was not obtained until respiration failed. It was then customary to intubate the patient and squeeze the bag. When this was done the deeper planes of anesthesia were easily obtained and the patient remained fit as long as the artificial respiration was kept up. Once relaxation was attained, the mixture could be soaked by the addition of oxygen. After anesthesia was reached, the addition of cyclopropane to the mixture was necessary only occasionally.

Induction was remarkably quiet. There was no excitement, coughing, or laryngeal spasm, and respiration was not decreased. The usually marked shallowness of the respiration may perplex the anesthetist who is accustomed to correlating the depth of respiration with the degree of anesthesia. Otherwise the signs of anesthesia were the same as those seen with the use of other general anesthetics. A rise in the blood pressure of 10, 20 or 30 mm. Hg or more was usually noted and varied directly with the concentration of the cyclopropane. Capillary bleeding was more marked than with the use of other anesthetics. As a rule the rate of the pulse neither rose nor fell but in a few poor risks arrhythmias developed. Except in cases in which heavy premedication was given, muscular relaxation occurred early and was very complete, perhaps because of the full oxygenation of the muscles.

When an excessive amount of cyclopropane was used, anesthesia was induced extremely rapidly and the fourth stage may develop after a few breaths. Therefore great care must be taken to control the flow of gas carefully. After the highest anesthetic the patients regained consciousness as soon as they could have regained it after nitrous oxide anesthesia, but after high laparotomies the return of consciousness was slow. Nausea and vomiting were less marked than after the use of ether but more marked than after the use of nitrous oxide and oxygen.

Rowbotham concludes that cyclopropane is useful chiefly for the induction of deep anesthesia and for temporarily fortifying nitrous oxide and oxygen. He sees no reason for using it to replace nitrous oxide and oxygen when only light anesthesia is required.

ELIZABETH CLARKE

PHYSICOCHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Kimm, H T, Spies, J W, and Wolfe, J J Sialography, with Particular Reference to Neoplastic Diseases *Am J Roentgenol*, 1935, 34 289

In the available literature the authors found only nine cases in which the roentgenographic visualization of the ducts, ductules, and parenchyma of the salivary glands was used as an aid in the diagnosis of neoplastic disease. They review these cases briefly and report eighteen others.

In the author's cases the technique employed consisted of the injection of lipiodol into the ducts with a 2 c cm Luer glass syringe and a cannula made from an ordinary steel needle, followed immediately by the making of stereoscopic roentgenograms. Slight discomfort resulted from the injection, but ceased within a few hours. As a rule from 10 to 15 c cm of lipiodol was sufficient for the parotid duct and from 0.5 to 0.75 c cm for the submaxillary duct.

The cases are divided into two groups. Group 1 included seven cases in which there was sialographic evidence of involvement of the salivary gland—five cases of mixed tumor of the parotid, one case of adenocarcinoma of the parotid, and one case of adenocarcinoma of the submaxillary gland. In these cases the tumor was observed to invade the gland. In five cases this finding was confirmed by surgical and pathological examination.

Group 2 included eleven cases of tumors without evidence of involvement of the salivary gland. The tumors included cysts, branchioma, carcinoma, and enlarged lymphatic glands.

The authors believe that sialography is a helpful but not infallible diagnostic procedure. It was not possible to differentiate definitely between a benign and malignant lesion involving the salivary gland.

EARL E. BARTH, M.D.

Picchio, C. A Critical Discussion of the Roentgenographic Anatomy and Roentgenological Symptomatology of the Neck (Appunti critici di anatomia radiografica e di semeiologia radiologica de collo) *Radiol med*, 1935, 22 881

Picchio reviews the radiology of the neck in the normal subject and in various pathological conditions, discussing chiefly controversial points. The boundaries between normal and abnormal are not well-defined. On the one hand there is a tendency to neglect valuable diagnostic signs and on the other, to interpret appearances sometimes found in normal individuals as abnormal.

The author's observations are based both on clinical cases and anatomical preparations. The first part of the article is devoted to the skeleton and the second part to the soft tissues. Picchio empha-

sizes the great variability of ossification in different individuals with regard to time of appearance, extent and structure of the bone, and the islands of compact substance which may appear in any of the cartilages, also the difficulties in judging the influence of constitutional and general pathological conditions on the skeletal apparatus. Because of superposition of the soft parts, exact information as to ossification is not always obtainable *in vivo*. Even in anatomical specimens certain structures, such as the arytenoid cartilages, may escape observation. Changes in the cartilages are often simulated by incomplete ossification or may be overlooked. In his roentgenograms of dissections of the normal larynx Picchio found that the appearances of incomplete ossification were identical with descriptions in the literature of cartilaginous absorption. In fact, the importance of roentgen study of the pharyngolaryngeal skeleton is more limited than is generally considered and lies chiefly in demonstrating the great variability of ossification under both normal and pathological conditions.

Diagnostic orientation has now shifted rather to the study of the soft tissues, which always supplements the clinical examination, sometimes permits a more detailed diagnosis, proves invaluable when laryngoscopic examination is technically impossible, and will give an objective record of the course of any lesion. The author discusses in detail the changes in the soft parts and skeleton due to lesions inside or outside of the trachea and their roentgen diagnosis. Infiltrations which may escape laryngoscopic diagnosis because they do not involve the mucosa produce characteristic deformities in the shadows of the soft parts and in the outlines of the trachea. Proliferative and ulcerative lesions are also easy to recognize. The vocal cords are not constantly visible normally, and judgment concerning them should be reserved. The same applies to the ventricles of Morgagni.

The article contains numerous roentgenograms and is followed by a bibliography.

M. E. MORSE, M.D.

Garland, L. H. The Roentgen Treatment of Certain Types of Arthritis. *Radiology*, 1935, 25 416

The author reports his experience with roentgen treatment in infectious and degenerative types of arthritis. Its use is justified in these conditions because of the generally recognized beneficial effects of small doses in stimulating localization of inflammatory processes and absorption of the regional exudate and their analgesic effect.

The aim of the treatment was to deliver approximately 10 per cent of a full dose to the affected joint or joints twice a week for two or three weeks. The

dosage in roentgens, measured in air without back-scatter was usually 60 r to each field. The technical factors employed were 200 kv.p. 30 ma., filtration with 0.5 mm. of copper and 1.0 mm. of aluminum, lambda effective 0.16 Å., and a distance and field depending upon the depth and the size of the affected joint. Most joints were treated through ventral and dorsal fields, and some through mesial and lateral fields. With the exception of the wrist, hand, and foot, most joints received irradiation in two fields on each treatment day. In the seven cases of spinal arthritis only large dorsal fields were treated. As a rule the field was rectangular and measured 30 by 35 cm.

Thirty cases of gonorrheal arthritis with a total involvement of eighty joints were treated. Thirty joints were apparently "cured," forty-five were benefited, and five were not benefited. In five cases of multiple joint involvement, one joint was left untreated as a control. In all five cases pain and swelling persisted in the untreated joint while the condition of the treated joint or joints cleared up. The average number of treatments in the cured group was 5.3, in the benefited group, 5.8 and in the not benefited group 4.5. The author reports several illustrative cases in detail.

In cases of non-gonorrheal arthritis the results were less satisfactory although the method offers possibilities for much benefit if it is employed judiciously. Absence of the immediate and often spectacular relief which occurs in cases of gonorrheal arthritis was conspicuous. Nine cases of acute infections (undeclassified) arthritis with involvement of thirteen joints showed improvement in eight of the joints. Of three patients suffering from chronic infectious arthritis with involvement of ten joints, two became free from symptoms. Of seven patients with chronic hypertrophic (degenerative) arthritis of the spine only one became free from symptoms but four others were benefited.

The author tabulates the cases with regard to age, sex, diagnosis, number of joints involved, dosage in r units, number of treatments, and results, and presents tables summarizing the results according to the number of cases and of joints treated.

ANDREW HARTMAN, M.D.

Pfahler, G. E.: A Further Discussion of the Saturation Method of Roentgen Therapy in Deep-Seated Malignant Disease. *Am J Roentgenol* 1935, 34, 639.

In the saturation method of roentgen therapy the tissue in the region of the malignant disease is irradiated to the limit of normal tissue tolerance (saturation) by either single or multiple doses, and this effect is maintained by additional continuous or fractional irradiation over a period long enough to destroy all of the malignant cells or to arrest their growth.

The principles involved in saturation therapy date from the beginning of roentgen therapy but their application has undergone considerable change

with improvement in the calculation of dosages and other factors relative to irradiation. At the present time the practical application of these principles consists of the administration of measured divided doses of filtered rays over a period of several weeks. This technique forms the basis of the saturation method used by the author as well as of several other methods, notably those recommended by Caserio, Schinz, and Holfelder.

The development of the saturation method is described at length from its introduction by Kugler in 1920 with the use of unfiltered rays to the treatment of skin disease to its adaptation to deep therapy with the use of filtered rays by the author. The saturation dose as built up by the fractional treatment and saturation curves is discussed in detail. The advantages of the method is related to the varying vulnerability of cells to irradiation during mitosis as demonstrated by others are emphasized. In the treatment of malignancy by irradiation consideration must be given not only to the destruction of the cancer tissue but also to the preservation of the adjacent normal structures. The saturation method is of advantage for both objectives.

In conclusion, attention is directed to the following rules for the use of the saturation method.

1. The irradiation must be accurately measured both as to surface and depth dose.

2. The rays must be carefully directed into the diseased tissue and, so far as practical, they pass through important essential organs must be prevented.

3. The distribution of the irradiation in the tissue with each application must be considered. To accomplish the desired distribution the equipment developed by Holfelder is very useful.

4. The cross-firing must be done accurately and the total dosage passing through each portal of entry as well as the saturation value must be measured or calculated for each port of entry and for the tumor tissue irradiated.

5. The normal tissues and the health of the organism as a whole must be conserved so far as possible. It is this requirement especially that makes the saturation curves of value as compared with an ordinary set rule of application or the indifferent application of divided doses, since in some cases it is possible to give a large dose at the beginning and thus reach the saturation value in the tumor tissue early while in others, especially when the irradiation is done through the large blood vessels or heart, it is necessary to give many small doses (because of irradiation sickness from large doses) in order to reach the required value. Moreover (if the treatment is interrupted by a complication, the necessary supplementary dosage to be given can be calculated more accurately from saturation curves than in any other way except perhaps by the most expert.

6. It is desirable to reach 100 per cent of an erythema dose in the tumor tissue as soon as possible without producing irradiation sickness and without

damaging any tissue. In cases of deep-seated disease this usually requires from several days to a week.

ADOLPH HARTUNG, M D

MISCELLANEOUS

Bierman, W, and Schwarzschild, M The Therapeutic Use of Short-Wave Currents *New England J Med*, 1935, 213 509

An electrical current as it passes through tissue liberates heat. Accompanying the heat, secondary harmful chemical effects may occur within the tissue. The electrical current must therefore be controlled and used in such a manner that it passes through living media in a rapidly changing direction. The type of current employed in diathermy or short-wave therapy is the alternating current. The number of alternations per second vary from 1 million (diathermy) to 30 million (short-wave therapy). The range of frequency of an alternating current is best expressed in wave lengths. Since electrical vibrations travel at the rate of 300 meters per second, division of this number by the alternations per second of a particular current gives the wave length of that current. If the alternations are 1 million per second, the wave length is 300 meters (diathermy), whereas if the alternations are 30 millions per second, the wave length is 10 meters.

Heat generated in a tissue is directly proportional to the product of the electrical field intensity (voltage) and the conductive current at that point. Its amount is influenced by the size and shape of the electrodes and the medium as well as the electrical constants of the tissue.

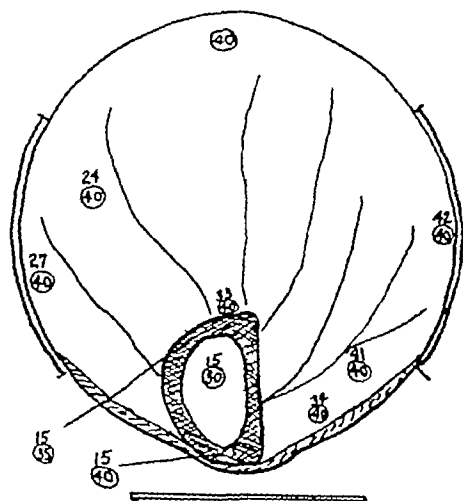


Fig 1 Showing the heating of a bovine thigh in the diathermy and short-wave fields. Temperatures in degrees centigrade. Short-wave determinations indicated in circles.

The total current consists of the conductive current and the displacement current. Since the electrical field changes its directions many million alternations per second, the current may be at a maximum when the field intensity (voltage) is at a minimum. Such a current, which is in a different phase with the electrical intensity, is known as a "displacement current." The "conductive current" is that component of the total current which is in harmony with the electrical intensity, both reaching their maximal and minimal phases simultaneously. The conversion of electrical energy into heat is dependent on the voltage and conductive current but independent of the displacement current.

The distribution of a conductive current through a medium depends upon the conductivity of the medium for which there is an electrical constant. Conductivity is defined as a measure of the conductive current which would be produced in a medium by a unit of electrical field strength. The distribution of the displacement current depends in turn on the dielectric constant of the medium. The dielectric constant is therefore that amount of displacement current which is produced in a medium by a unit field of electric strength.

Accurate analysis of the distribution of current can be made only in the simplest cases as in the following example. A current of specific magnitude

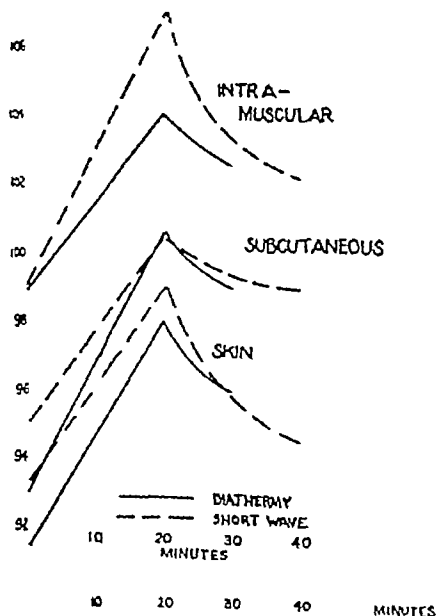


Fig 2 Cutaneous, subcutaneous, and intramuscular temperature determinations in the thigh of a living human subject before and after exposure to twenty minutes of diathermy and to twenty minutes of short-wave current. Cuff electrode technique. Temperature in degrees Fahrenheit.

passes between electrodes which enclose a mass of tissues consisting of two layers, one fat, the other vascular tissue. It is known that the conductivity of vascular tissue is greater than that of fat. Also that the latter has a lower dielectric constant than vascular tissue. When the alternation frequency is high (short wave) a great part of the current is of the displacement type both in the fatty and vascular tissues. The conductivity of vascular tissue being higher than the conductivity of fat, the vascular tissue will become the warmer. However the frequency can be so regulated so that both tissues can be heated equally. This will be accomplished when the electric field intensity is greater in the fatty tissue to the same degree that the conductive current of the vascular tissue is greater than that in the fat.

Short wave therapy offers advantages over diathermy. Uniform heating of tissues can be obtained. In cases in which specific tissues or organs are to be treated selective heating can be administered without including contiguous structures, as in therapy for lungs, cartilage or bone. Fig. 1 is a graphic comparison of temperatures after diathermy and short wave therapy to a bovine thigh. It demonstrates the greater uniformity of heat delivered by short wave to all the tissues, regardless of the distance from the plates.

Figure 2 represents on a comparative basis the elevations in the temperature of the skin, subcutaneous tissue, and muscle in a patient who received diathermy for twenty minutes in the morning followed by similar short-wave treatment in the afternoon. Both treatments were given over the same area. The temperatures were taken by means of thermocouple needles. The graph shows that higher temperatures for a longer time can be obtained by the use of short wave therapy.

The value of short-wave therapy cannot be appraised until a larger series of cases is studied. The form of treatment may be used for traumatic and gonorrheal arthritis, myositis, myobactis, sprains, and traumatic tenosynovitis. It may be employed also as an adjunct in the treatment of carbuncles, axillary abscesses, hand infections, and cervical gland infections before and after surgical drainage.

Short wave therapy should be given carefully. Burns and overheating of tissue must be guarded against by proper regulation of the current. There should be no clothing or metal object between the treated area and the plates. Though there are a great many short wave machines on the market, the physician purchaser can obtain a useful machine best by selecting one approved by the Council on Physical Therapy of the American Medical Association.

BENJAMIN G. P. SHAWWORTH, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Barraquer-Ferré, L. Progressive Lipodystrophy, the Barraquer-Simon Syndrome (Lipodystrophie progressive, syndrome de Barraquer-Simons) *Presse méd*, Par, 1935, 43 1672

The author describes a family in which a direct, homologous heredity of progressive lipodystrophy was demonstrated in three generations. Barraquer-Simon disease is characterized by unequal distribution of the fatty tissues with their disappearance especially from the face as contrasted to their normal or even exaggerated development in the buttocks, thighs, and legs. The syndrome was first described in 1906 by Barraquer Roviralto. Of seventy-two cases collected by Coates in 1926, fifty-one were cases of women and children. Emaciation of the face is the first symptom to attract attention. The skin and the motility of the muscles are normal. Soon the emaciation may extend to the neck, shoulders, chest, and arms. Ultimately the skin adheres directly to the muscles. In some cases the arms are not affected at all or not until after a period of years, whereas in others they are involved simultaneously with, or even before, the face. Except for a relative asthenia in a few cases, there are no other symptoms. The disease does not cause death. It is particularly common in Jews. There are no associated psychopathic or atrophic symptoms, and the electrical reactions of the muscles and the reflexes are quite normal.

In the case reported by the author the condition became noticeable at the age of twenty years and investigation revealed that the patient's mother and grandmother had been similarly affected. There was also a familial history of epilepsy.

Various endocrine disturbances (pituitary, pineal, thyroid) have been considered as possible etiological factors, but the pathogenesis of the disease is still obscure. An endocrine-vegetative disequilibrium and constitutional disposition are probably involved. The symmetrical distribution of the dystrophy suggests nervous components. The disappearance of fat is due to inhibition of the lipophilic process in the upper half of the body. No anomalies of innervation are demonstrable on histological examination.

The condition is easily differentiated from facial hemiatrophy because in the latter the atrophy is unilateral, and from Landouzy-Dejerine facioscapulo humeral myopathy because, in progressive lipodystrophy, the motor function of the facial muscles is not affected. In Simmond's disease there are numerous symptoms pointing to involvement of the pituitary gland.

No successful treatment for progressive lipodystrophy has been discovered. Various endocrine preparations, including insulin and epiglandol, have been tried, but without result. Insulin has an exacerbating effect. The author suggests that perhaps the alternate administration of insulin and lipoidin might prove beneficial. **EDITH S. MOORE**

Coller, F. A., and Maddock, W. G. A Study of Dehydration in Humans. *Ann Surg*, 1935, 102 947

From a water-balance study involving the dehydration of two normal adult subjects and the hydration of a patient who showed moderately severe effects of depletion of the body water, it was apparent that, with a loss of body fluid amounting to about 6 per cent of the total body weight, an individual is at the beginning of serious dehydration. At this point, the clinical signs of dehydration are well established. The blood is concentrated and the urine output insufficient to maintain normal kidney function, the non-protein nitrogen of the blood being therefore above normal. The effort of the kidneys to rid the body of waste materials under such adverse circumstances may result in kidney damage, as shown by the occurrence of protein, casts, and erythrocytes in the urine.

From the findings of this study the authors conclude that a water intake of about 1,500 c.c.m. is needed for the production of urine, and that losses from vomiting or drainage should be measured and the corresponding volume of water added to the intake. About 1,500 c.c.m. per day should compensate for the vaporization from the skin and lungs. For patients showing the beginning signs of dehydration, a fair estimate of this water need is 6 per cent of the total body weight.

From these calculations of water requirements it is evident that the usual 2 or 3 liters of fluid intake are entirely inadequate for the seriously dehydrated patient. **J. FRANK DOUGHTY, M.D.**

Allen, E. V., and Ghormley, R. K. Lymphedema of the Extremities. Etiology, Classification, and Treatment. A Report of 300 Cases. *Ann Int Med*, 1935, 9 516

Lymphedema, which affects human beings, appears to have a multiple etiology. Lymphatic stasis occurs primarily as a result of obstruction produced by inflammatory or non-inflammatory processes or by lymphangiectasis, which occurs in association with congenital lymphedema. When obstruction occurs, the intralymphatic pressure increases and causes dilatation of lymph vessels with subsequent insufficiency of the valves, forcing lymph to seek new channels which are supplied inadequately with

valves. Since valves are very important in causing the lymph to move centrally, incompetence of the valves causes further stasis of lymph. The protein content of the lymph increases and fibroblasts proliferate rapidly since the lymph is an excellent culture medium for the growth of fibroblasts. This fibrosis contributes further to lymph stasis. As a result of the increased quantity of lymph in the tissues, attacks of acute inflammation may recur producing thrombosis of lymph vessels, more stasis of lymph, and hence more fibrosis. The vicious cycle consists of stasis of lymph, fibrosis, inflammation with further stasis, and more fibrosis.

The cases of lymphedema studied lend themselves to division into two main groups, inflammatory and non-inflammatory. The terms "infectious" and "non-infectious" could be used as well. The division into the two groups indicates the original state. Lymphedema which is originally non-inflammatory may be complicated eventually by inflammatory changes. Most cases of lymphedema may be classified without difficulty according to this scheme. The classification is purely clinical.

To be of value medical treatment must be carried out early. No medical treatment is of value when the limb is greatly hypertrophied from the overgrowth of connective tissue. Treatment must be instituted when the edema first becomes evident. The longer uncontrolled lymphedema exists, the more fibrosis occurs and the less efficient medical treatment becomes. This point needs to be emphasized as in most of the authors' cases of lymphedema the lymphedema has been present for a long time and marked fibrosis which cannot be influenced by medical treatment has already occurred.

The necessity of surgical treatment of lymphedema is a frank admission of the failure of medical treatment in those instances in which the best medical treatment has been carried out. In many instances, however, surgical treatment is necessary because medical treatment has been carried out inefficiently or not at all. The selection of cases of lymphedema for surgical treatment depends on the cause and severity of the lesion. There is no need to perform the operation in cases in which malignancy exists or in cases in which causative conditions of greater importance than lymphedema, such as Hodgkin's disease or pelvic tumors, exist. Unfortunately the patient who has mild lymphedema cannot be procured a great deal of benefit. The leg can be restored to normal size and to nearly normal shape, but there is no assurance that such restoration will be in any way permanent unless an adequate type of supporting bandage is worn for an indefinite period. Therefore the more severe the case, the more one can offer in the way of relief with surgical treatment. A history of attacks of cellulitis is not a contraindication to surgical treatment. On the other hand, one can reasonably assure patients who have had recurrent attacks of cellulitis that the frequency of these attacks will be reduced. One should, of course, not operate during an attack of cellulitis.

The immediate pre-operative care should consist of rest in bed for a few days with the affected limb elevated continuously to reduce the edema. Dietetics such as alyngas, and firm bandaging may hasten the disappearance of edema. In from three to six days, as a rule, there will be a reduction of the amount of lymph in the limb to the minimum which will make the surgical procedure much easier.

The various surgical methods which have been used for the treatment of lymphedema have been reviewed by Ghormley and Overton. The procedure used at the Mayo Clinic is that described originally by Kosselson and modified by Strunk.

Abel, J. J.: The Toxic of the Radicle Tetani Is Not Transferred to the Central Nervous System by Any Component of the Peripheral Nervous Trunk. *Rev. Soc. argent. de med.* 1934, 19: 707.

The author cites numerous facts in support of his belief that tetanus toxin and dystralls injected in an aqueous medium either intracranially subcutaneously, intramuscularly or intravenously are not carried in the axis cylinders, the lymphatic vessels, or the tissue spaces of the peripheral motor nerves to the reacting cells of the central nervous system. He refers to the recent investigations of anatomists who traced the outflow of lymph from nerve trunks and found that it, like the lymph of other structures of the body, is added finally to the venous blood and not to the cerebrospinal fluid. He calls attention also to a series of investigations carried out in the period from 1910 to 1914 in which it was shown conclusively that alkaloids and dystralls cannot be distributed throughout the body by any peripheric mechanism such as the "tissue spaces." Later he will report investigations which have been in progress for more than two years on the pathology of local tetanus, the influence of complete denervation of muscles, the course of the poisoning, and the reflex phenomena and other aspects of both experimental and natural tetanus. He states that he and his associates find themselves quite as unable to accept the current theories with regard to many of these points as they were to accept the current theories discussed in this article.

WALTER H. NANCE, M.D.

Swift, H. W., Lanczfeld, R. G., and Goodner K.: The Serological Classification of Hemolytic Streptococci in Relation to Epidemiological Problems. *Am. J. M. Sc.* 1935, 290: 445.

Human infections with streptococci hemolytic, representing characteristic clinical entities, may be caused by entirely different strains in different individuals. Similarly the same strains may cause different clinical entities in different persons. Lanczfeld has shown that hemolytic streptococci can be differentiated serologically into distinct and sharply defined groups by means of the precipitin reaction based on the fact that the strains of each group contain a common specific carbobydrate, the so-called "C" substance. Group A includes most of

those which have been isolated from human infections and human carriers. For epidemiological studies each group must be differentiated into separate types. Group A may be divided into serological types on the basis of specificity of "M" substance according to Lancefield, or by the special slide-agglutination technique with especially absorbed sera as advocated by Griffith. These types are as highly specific as are the types of pneumococci.

Grouping permits one to obtain an approximate idea of the animal species from which the strain originated and of its potential pathogenicity for man. Typing permits one accurately to follow the course of epidemics in limited populations.

ELIZABETH M. CRANSTON

Klein, S. A. The Importance of the Antivirus of Besredka in Surgery (Die Bedeutung des Antivirus von Besredka in der Chirurgie). *Beitr. z. klin. Chir.*, 1935, 162, 15.

The antivirus of Besredka is a substance which is formed from the dead and destroyed bacteria during the growth of a pure culture in bouillon. The immunity following an infection is ascribed to it. The author has studied the action of antivirus in animal experiments and in pathological conditions in human beings. On the basis of his findings he ascribes to the antivirus an immunizing and weakly antiseptic action which depends on the nature and quantity of the virus. He attributes the immunizing action to (1) an activation of protoplasm, and (2) an as yet unknown factor of bacterial decomposition.

The antivirus is not specific. In infected fractures in rabbits, treatment with antivirus had a very favorable effect. While the control rabbits became severely ill or died, healing occurred in those treated with the antivirus. Equally favorable were the results obtained in perforated appendicitis and peritonitis produced experimentally in rabbits. In clinical cases favorable results were not obtained, the antivirus had no apparent influence on peritonitis. However, the author believes that the antivirus is of prophylactic value. In cases in which it was employed in association with procedures likely to cause contamination, such as operations for carcinoma of the colon and rectum, remarkably good healing occurred. In infected injuries of human beings no effect of the antivirus on healing could be demonstrated with certainty.

(E. KOENTIG) JACOB E. KLEIN, M.D.

Ramsdell, E. G. Calcinosis Universalis. *West J. Surg., Obst. & Gynec.*, 1935, 43, 624.

The case reported was that of a child ten years old. The condition ran a long febrile course with marked loss of weight, scleroderma, the deposit of enormous amounts of calcium in the subcutaneous tissues, and a marked vasospasm of the peripheral vascular system suggesting the Raynaud type, with a normal blood calcium and blood phosphorus.

At operation, hyperplasia of the thyroid but no demonstrable parathyroid change was found.

Unilateral thyroidectomy and attempted parathyroidectomy were followed immediately by marked relief of the vasospasm and rapid absorption and melting of the tissue calcium. PAUL STARR, M.D.

Salvesen, H. A. The Sarcoid of Boeck, a Disease of Importance to Internal Medicine. *Acta med. Scand.*, 1935, 86, 127.

The sarcoid of Boeck was originally described as a skin disease, but has been proved to be a disease with a general distribution in the lymphatic system, the internal organs, and the bones.

The author reports four cases. The patients were one man and three women ranging in age from thirty-eight to fifty-six years. Two of the patients presented symptoms not hitherto described in descriptions of Boeck's sarcoid. One of the women suffered from contracted kidney with peculiar clinical features, a low blood pressure, and neuritis of the optic nerve in addition to skin sarcoids and lung lesions of the usual type. A woman thirty-eight years old had a heart lesion with intermittent blocking of the right division of the bundle of His dependent partly on the heart rate. The author presents the electrocardiograms made in this case which show transition from normal conduction to block and, under the influence of amyl nitrate, from block to normal. The man had glandular tumors, iridocyclitis, enlargement of the spleen, and extensive infiltration of the lung for three years before the skin sarcoid appeared. In three cases in which the serum protein was determined an increase ranging from 9 to 9.67 per cent was found.

The author believes that the sarcoid of Boeck should be included in the textbooks of internal medicine.

Raven, R. W. Sacrococcygeal Cysts and Tumors. *Brit. J. Surg.*, 1935, 23, 337.

The sacrococcygeal region is one of the most common sites of anomalous cysts, sinuses, and tumors of various kinds. This is not surprising when the complex nature of the development of this part of the body is taken into account. The author cites the changes occurring in the caudal extremity of the primitive streak, the formation and disappearance of the neurenteric canal and the post-anal gut, and the formation of the terminal part of the intestinal tube by the development of the anal canal. Complicated changes occur also in connection with the genito-urinary system. It is possible that any of these primitive structures may leave a relic of their existence and furnish a contribution to that which has been described as a histological potpourri.

The author cites briefly certain cysts and sinuses which are encountered on the posterior aspect of the sacrum and coccyx. The most common lesion of this type is the pilonidal sinus or sacrococcygeal fistula. Bland-Sutton attributed this lesion to faulty coalescence of the cutaneous covering of the back and compared it to the interdigital pouch of the sheep. Newell states that it is a dermoid caused by

traction of the underlying tissues on the median raphe when retrogression of the tail begins.

Pathological structures on the anterior aspect of the sacrum and coccyx may be classified as cysts and tumors. The cysts may be subdivided into (1) dermoid cysts, (2) cysts arising from the embryonic post-anal gut, and (3) sacrococcygeal cysts of meningeal origin. Practically all types of tumors have been found in the sacrococcygeal region.

Sacrococcygeal tumors must be differentiated from other swellings occurring in the pelvis such as fibroid tumors of the uterus, cysts of the ovary, tubal and abdominal pregnancy, pelvic abscesses, intraligamentous cysts, and anterior spina bifida.

Teratomas appear to be the most common variety of tumor in the sacrococcygeal region. In the present state of our knowledge of tumors in general and of teratomas in particular it is impossible to state the origin of sacrococcygeal teratomas. It appears true, as Nicholson suggests, that these neoplasms are malformations. Further knowledge of their origin will be gained as experimental embryology unravels the intricacies of the complex developmental processes and throws new light on the growth centers of the body at the caudal extremity. It may be that these malformations will be found due to a faulty coherence of embryonal parts and a diminution of growth momentum. JOSEPH K. MARAT, M.D.

Rogers, H., and Hall, M. G. Pilonidal Sinus: Surgical Treatment and Pathological Structure. *Arch Surg* 1935, 5, 743.

After abating the treatment given in 181 cases of pilonidal sinus the authors conclude that the economic loss incident to radical excision is greater than the importance of the disease warrants.

Injection of the tract with dyes under pressure leads to the removal of a larger amount of tissue than is necessary as a great deal of normal tissue is thereby stunted and consequently excised. On morphological grounds there are no indications for radical excision, and in a bloodless field diseased tissue is recognizable from its appearance and its consistency.

The best results have been obtained by removing only the diseased tissue under local anesthesia with the cautery and subsequently as it is recognized in the healing wound. Under such treatment the patient is ambulatory most of the time, there are fewer recurrences, less mutilation results, and the economic loss is less. GEORGE A. COLLIER, M.D.

Mahoney, R. E.: Chordoma: A Study of 134 Cases. *Am J Cancer* 1935, 5, 301.

Chordoma is a rare and usually fatal tumor which arises from the fetal notochord. Mahoney reviews from the clinical point of view all cases reported to date and 8 additional cases, 150 in all. He discusses the location, age and sex incidence of the tumor, the symptoms of the 5 groups, the diagnosis, the morbid anatomy, the treatment and prognosis, and the occurrence of metastases. His conclusions are:

1. Chordoma arises from remnants of the fetal notochord.

2. It is found twice as often in the sacral region as in the cranial region. It sometimes involves the vertebrae.

3. It may occur at any age, but is most frequent at the "cancer age." It is twice as common in men as in women.

4. There are no characteristic symptoms.

5. The diagnosis rests on the presence of a tumor in the sacral region and a defect in the sacrum and the discovery in a section of large vacuolated cells and a homogeneous mucinous like substance.

6. The prognosis is not good.

7. In cases of sacrococcygeal chordoma the treatment should be surgical whenever possible. X-ray and radium treatment are probably of some value in advanced cases. (Lutz R. STREET, M.D.)

Strong, L. C.: The Effect of Oil of Allicapae on the Incidence of Spontaneous Carcinoma in Mice. *Am J Cancer* 1935, 35, 407.

The investigations reported were made on two series of mice which belonged to the same highly inbred strain (the Strong A strain) and were subjected to the same treatment up to the time of the experiment. During the experiment both series were placed on an oatmeal diet, but the first series were given small amounts of oil of allicapae in addition.

The incidence of spontaneous carcinoma of the mammary gland was higher in the controls (39.91 per cent) than in the experimental animals (16.34 per cent) and the condition occurred at an earlier age (368.5 days) in the former than in the latter (440.5 days). That the experimental animals were not in any way impaired was evident from the fact that the negative individuals of this group (the animals that died of a condition other than cancer) lived longer (433.7 days) than the corresponding controls (341.1 days).

The findings seemed to indicate that the daily administration of oil of allicapae has a controlling influence on carcinoma of the mammary gland in mice.

WALTER H. NADLER, M.D.

Koberg, E.: A Case of Congenital Sarcoma (Ein Fall von angeborenem Sarkom). *Zentralbl Chir* 1935, P. 106.

The author reports the case of an infant which is born with a tumor the size of a child's fist in the left posterior axillary fold and a dense infiltration of the axillary lymph glands. The tumor grew to double its original size within nine days and was removed by the author together with the regional glands. The specimen weighed 113 gm and measured 23 cm in its greatest diameter. The pathologico-anatomical diagnosis was fibrosarcoma. The mother had sustained a trauma to the uterus from a shovel handle in the seventh or eighth month of pregnancy.

The author calls attention to the possibility of a relationship between trauma and sarcoma.

(VON SCHEER) LEO M. ZIMMERMAN, M.D.

Brabec, L. B. A Quantitative Investigation upon the Occurrence of Vitamin G in Rat Sarcoma
39 *Am J Cancer*, 1935, 25 551.

The author reports quantitative determinations of the content of Vitamin G in rat sarcoma and in liver tissue from the same animals. The results show a considerable difference in the Vitamin-G content of equal weights of tumor tissue and liver tissue from animals raised on a diet consisting of two-thirds whole wheat and one-third whole milk powder plus sodium chloride to the extent of 2 per cent of the weight of the wheat. The Vitamin-G content of the tumor tissue was low. The liver tissue was approximately seven times as rich in Vitamin G per gram as the tumor tissue. The results were the same whether the average total gain made by the experimental animals was determined for five weeks or eight weeks.

While the liver tissue from animals with growing transplanted tumors appeared to be somewhat lower in Vitamin G than liver tissue from animals without growing tumors, the results of this investigation furnished no evidence that the growing tumor consumed Vitamin G in the body of the host. It was found that a diet otherwise adequate but deficient in Vitamin G does not prevent the taking or growth of Sarcoma 39.

WALTER H. NADLER, M.D.

DUCTLESS GLANDS

Repetto, E. Experimental Studies of the Functional Correlations Between the Thyroid and Liver (Ricerche sperimentali sulle correlazioni funzionali fra tiroide e fegato) *Arch ital di chir*, 1935, 40 564.

Experiments were performed on dogs to determine whether there is any relationship between the function of the thyroid and the function of the liver. The author presents the protocols of the experiments and tables showing the results in detail. He emphasizes that a study should be made, not of liver function as a whole, but of liver functions. One function of the liver may be affected while the other functions are entirely normal. Repetto studied particularly the metabolism of carbohydrates, proteins, and cholesterol.

His findings show that after either partial or total removal of the thyroid there was a decrease in the glycogenic function of the liver manifested by hypoglycemia, i.e., that capacity of the liver for splitting glycogen into glucose and returning it to the circulation was decreased. There was also a hyperlactacidemia probably due to a decrease in the capacity of the liver to transform or destroy lactic acid. In addition there was a marked decrease in protein metabolism shown by an absolute decrease of the urinary urea in twenty-four hours parallel with an increase of azotemia and a decrease in the elimination of ammoniacal nitrogen and amino-acids. There was also a marked increase in the amount of cholesterol in the liver, spleen, kidneys, and muscles after

total or partial removal of the thyroid, indicating a decrease in capacity of the liver to transform and eliminate cholesterol.

Evidently, therefore, there is marked synergy between the thyroid and liver, and a decrease in thyroid function brings about a decrease in liver function.

AUDREY GOSS MORGAN, M.D.

Hellstroem, J. Hyperparathyroidism, A Real and Practically Important Disease (Hyperparathyreoidismus—eine aktuelle und praktisch wichtige Erkrankung) *Nord med Tidskr*, 1935, pp 351, 375.

In recent years there have been many reports on hyperparathyroidism. The author refers the reader to articles which have appeared previously in the *Zentralorgan Wijnbladh* (1932), *Amelin* (1933), *Lambert* (1933), and especially the clinical and experimental studies of *Ask-Ugmark*, entitled "Parathyreoida und Calciumsalz im Organismus" (1931). He believes these references will preclude unnecessary repetition.

The author's statements are based mainly on the French and American findings. The authors, Lénche, Jung and Albright, and Aub and Bauer are referred to most frequently. Hellstroem also refers to the transactions of the French and Italian Congresses in 1933, the German Surgical Congress in 1935, and the International Surgical Congress held in Cairo in 1935. By reading these references all the clinical and experimental results of the study of the function and dysfunction of the parathyroids known up to this date may be reviewed. The author's contribution on hyperparathyroidism contains a report of five personal cases.

The author classifies hyperparathyroidism, in accordance with the reports of American authors, into six types: (1) classical hyperparathyroidism or von Recklinghausen's disease, (2) osteoporotic hyperparathyroidism, (3) hyperparathyroidism with nephrolithiasis, (4) hyperparathyroidism with renal insufficiency, (5) hyperparathyroidism which simulates or is complicated by Paget's disease, and (6) acute parathyroid poisoning. The diagnosis is always made with the discovery of an altered calcium metabolism, primarily with the clinical findings of hypercalcemia. At the same time there is an abnormally low content of phosphorus in the blood and an increase of calcium in the urine, which is evidence of the disturbance of the calcium balance. Exceptions to these general rules are probable. American authors believe also that the response to electrical stimulation is important, and that delayed response (chronaxia) is a pathological symptom indicative of muscular hypotonia.

The findings which are important for the differential diagnosis between hyperparathyroidism and other diseases of the bones are tabulated according to the American authors, Albright, Aub and Bauer. They serve to differentiate hyperparathyroidism from senile osteoporosis, Paget's disease, osteomalacia, solitary bone cysts, solitary benign giant-cell

tumors, osteogenesis imperfecta, multiple myelomas, malignant metastases, and basophilic adenoma of the hypophysis (Cushing's disease)

In the great majority of the cases of hyperparathyroidism an adenomatous hypertrophy of one or more of the parathyroid glands has been found. When exceptions are noted they may be explained by the fact that the parathyroid adenoma may be so located that it is easily overlooked during operation or autopsy. For instance, in the mediastinum or buried in the thyroid gland. Certainly the parathyroid adenoma plays the same rôle in hyperparathyroidism as thyrotoxicosis in hyperthyroidism. Here, also, there may be exceptions. In the treatment it must be remembered that remissions, possibly even with spontaneous cure, are possible. However, as a rule hyperparathyroidism is a progressive disease leading quickly to invalidism and early death. Calcium preparations, vitamin D, and heliotherapy give relief at times, and in rarer instances some improvement. However as long as definitely therapeutic internal medication is unknown, surgical intervention should not be delayed. Mandl paved the way for this procedure in 1916 (*Deutsche Zeitschr. f. Chir.* 1935 and *Beitr. z. H. u. Chir.* 1934). Since then, the number of cases in which operation was performed has increased to over 100. The rapid, sudden change in the general condition of the patient, the changes in the calcium metabolism, and the danger of post-operative tetany are well known. Of course, complete restitution to the normal can be expected only in the early recognized cases in which operation is performed in time. In the advanced cases the condition can be arrested but the patient will be left more or less of an invalid. Therefore the necessity of diagnosing the condition and performing parathyroidectomy in the early stages is to be emphasized. Early diagnosis is important also in regard to the

renal symptoms in order that kidney damage (renal insufficiency) has not progressed too far before intervention takes place. As hyperparathyroidism is associated with an overproduction of the parathyroid hormone it was believed that the normal parathyroid glands could be removed also. However the author is very skeptical of the results reported. The slight tetany which usually is observed postoperatively can be quickly overcome with the administration of calcium and parathyroid hormone.

The operative mortality in the cases of parathyroidectomy reported up to date is about 10 per cent. This percentage could be reduced if the operations were limited to the removal of only true parathyroid adenomas. As mentioned before, in the operative technique (Kocher collar incision) a methodical search should be made for the adenoma as it may lie in varied locations, even in the mediastinum.

In contrast to the results from roentgen irradiation in hyperthyroidism, the results in hyperparathyroidism are very limited. The ankylosing type of polyarthritis has also come to be considered a sign of hyperparathyroidism, and parathyroidectomy has also been done in these cases. This procedure has both enthusiastic followers and skeptics. From the reports in the literature it seems certain that the operation will be of value if there is a definite increase in the calcium content of the blood. The same may be said of parathyroidectomy if used for the osteitis deformans of Paget. Similar statements have been made regarding parathyroidectomy in cases of scleroderma, progressive muscular atrophy and myositis ossificans. However, as yet no information has been obtained regarding the permanent results in the last mentioned cases. The author refers the reader to the article by Bjørre in the *Extradigestion* for 1935 No. 13701.

(GOSLACK). WILLIAM C. RECK, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

- The treatment of compound fracture of the skull D. MUNRO *New England J Med* 1935, 213 551 [209]
 The treatment of fracture of the base and convexity of the skull, with particular reference to coöperation with the ear, nose, and throat surgeon HFTZAR *Zentralbl f Chir*, 1935, p 2084
 A rare cause of intracranial calcification, tuberoscle-rosis C MACDONALD *Brit J Radiol*, 1935 8 607
 Fractures of the nasal and malar bones G B NEW *Surg Clin North Am*, 1935, 15 2242
 Thrombophlebitis of the cavernous sinus from tonsillitis. J AMERISO *Red méd. d Rosario*, 1935, 25 499 [209]
 The treatment of carbuncles of the face H P TOTTEW *West. J Surg., Obst & Gynec.*, 1935, 43 609
 Treatment of furuncles on the face R KLAPP and J BAUMANN *Therap. d. Gegenw.*, 1935, 76 241 [209]
 Cancer of the cheek and neighboring bone V P BLAIR, J B BROWN, and L T BARRS. *Am J Surg*, 1935, 30 250
 Congenital median cleft of the chin W J STEWART *Arch Surg*, 1935, 31 813
 A case of irreducible dislocation of the jaw L OLIVARES *Actas Soc. de ciruj. de Madrid*, 1935, 4 270
 The treatment of fracture of the jaw E VON MADARÁSZ *Ztschr f Stomatol*, 1935, 33 838
 Wire extension in the treatment of mandibular fractures. R. BROOKE. *Brit M J*, 1935, 2 498
 The pathogenesis and treatment of osteomyelitis of the ascending ramus of the jaw, with particular reference to the retention splint of Herbst A JIMMENKAMP *Deutsche Zahnärztl Wehnschr*, 1935, p 861
 A case of ossification of the muscles of mastication and ankylosis of both temporomandibular joints Myositis ossificans progressiva KLILLO *Deutsche Zahnärztl. Wehnschr*, 1935, p 675
 A cyst of the superior maxilla with dental inclusion A TENGLIA and C GUGLIELMI *Semana med*, 1935, 42 1027
 The treatment of carcinoma of the upper jaw at the Tuebingen University Surgical Clinic since the introduction of diathermy in 1929 J SEITZER. 1935 Tuebingen, Dissertation
 Submental and bilateral submaxillary dissection C D DIXON. *Surg Clin North Am*, 1935, 15 1303
 An inquiry into the origin of the mixed tumors of the salivary glands, with reference to their embryonic interrelationships P L LI and CHI SHIH YANG *Am J Cancer*, 1935, 25 259 [210]

Eye

- The business side of the practice of ophthalmology and otolaryngology S B CHASE *J Iowa State M Soc.*, 1935, 25 576

- Advances in the treatment of eye diseases. H B STALLARD *Practitioner*, 1935 135 560
 Albrecht von Graefe founder of modern ophthalmology. His life and works C A PIERRE *Arch. Ophth* 1935, 14 742
 Newer developments in photography of the eye W A MANN JR. *Am J Ophth* 1935 18 1030
 Illumination intensities for reading W A TINKER *Am J Ophth*, 1935 18 1036
 Kinescopy—objective and subjective S HOLTH *Brit J Ophth*, 1935, 19 603
 Binocular vision in everyday life, with a description of the binocular gauge. P C LIVINGSTON. *Proc. Roy Soc. Med, Lond*, 1935, 29 59
 Anisometropia and sex J A WILSON. *Brit. J Ophth*, 1935, 19 613
 Myopia and nearwork H I IPSCHUTZ *Brit. J Ophth*, 1935, 19 611
 The control of myopia F JACKSON *J Am M Ass*, 1935 105 1412
 Aniseikonia—a factor in the functioning of vision A AMES JR. *Am J Ophth*, 1935, 18 1014
 Injuries of the eye. H S GRADLE. *J Iowa State M. Ass* 1935, 25 573
 Rupture of the eyeball W L BENEDICT *Surg Clin North Am*, 1935, 15 1257
 The management of hemorrhage in ophthalmology and otolaryngology W J FOSTER. *J Iowa State M Soc.*, 1935, 25 577
 Ocular chalcosis R VON DER HEYDT *Am J Ophth*, 1935, 18 1045
 Exophthalmos in an aged spinster SIR T OLIVER. *Lancet* 1935, 220 1116
 Pulsating exophthalmos and its treatment. A CHIASSERRI and A TOMBIASSINI MATTIOLI *Policlin*, Rome, 1935, 42 sez. prat. 2034
 Optic atrophy A F CAMAUER. *Rev. Assoc. med. argent.*, 1935, 49 989
 Allergic ocular manifestations M WIENER. *South M J*, 1935 28 1011
 A peculiar case of anthrax of the eyelid G KUTZIG 1935 Halle Wittenberg, Dissertation
 The treatment of trachoma by diathermy coagulation G VON GROLMAN. *Semana med*, 1935, 42 1080
 The pathogenesis and pathological anatomy of chalazion G DVORAK THEOBALD *Arch Ophth*, 1935, 14 817
 A case of malignant pustule of the eyelid A F MURDOZ *Clin y lab*, 1935, 20 233
 Orbital phlegmons J MÖLLER *Festschr. Kubo*, 1934, p 85 [210]
 The traumatic ophthalmoplegias as a workmen's compensation problem. M DAVIDSON *Am J Ophth.*, 1935, 18 1030
 Hyperphoria associated with overaction of the inferior oblique muscle. Treatment by recession of the origin of

The treatment of sinusitis by the displacement method using ephedrin and bacterial antigens. J. K. GUNDEL and H. SALT. *N. Y. Laryngoscope*, 1935, 45, 828.

The value of X-ray therapy in chronic sinusitis. I. D. WARREN. *Laryngoscope*, 1935, 45, 864.

The diagnosis and treatment of malignant tumors of the nasal sinuses. G. A. ROBINSON. *Am. J. Roentgenol.*, 1935, 34, 641.

A brief consideration of radical surgery in the pyramidal sinuses. J. W. JEFFERY. *South M. J.*, 1935, 8, 1056.

On tumor of the thyroid: report of a case. B. I. BRYANT. *Laryngoscope*, 1935, 45, 882.

Mouth

Plastic surgery for lipship. J. A. C. ACHESON. *Rev. med. d. Rosario*, 1935, 25, 93.

Treatment of cancer of the lip. H. I. MARTIN. *Am. J. Surg.*, 1935, 30, 215.

The value of speech training in cases of cleft palate and other oral conditions. I. I. SCHAFER. *Arch. Otolaryngol.*, 1935, 22, 288.

Radiation therapy of malignant cancer of the tongue. I. I. KATZ. *Am. J. Surg.*, 1935, 30, 227.

The surgical aspects of the treatment of carcinoma of the tongue. I. M. LITVINSKY and H. I. MARTIN. *Am. J. Surg.*, 1935, 30, 224.

Life masks in conjunction with models of the mouth. A. R. BROOKS. *Proc. Roy. Soc. Med. Lond.*, 1935, 28, 117.

Malignant diseases of the mouth and throat. I. A. HILL. *South. Clin. North Am.*, 1935, 15, 1331.

Pharynx

A membranous oropharyngitis. H. HUNTER. *Med. J. Australia*, 1935, 2, 629.

Carcinoma of the upper pharynx. C. I. MARTIN. *Am. J. Surg.*, 1935, 30, 216.

The treatment of pharyngeal cancer. Fractional dose methods of external irradiation. W. I. MARRICK. *Arch. Otolaryngol.*, 1935, 22, 442.

What about tonsils? S. B. Mc MILLAN. *Canadian M. Ass. J.*, 1935, 33, 507.

Pharyngeal sepsis, thrombosis of the facial vein, periphlebitis of the internal jugular vein and thyrolingual venous trunk. R. POINTEA. *Rev. Assoc. med. argent.*, 1935, 20, 1041.

Dermoid cyst of the tonsil. M. M. ROSENBERG. *Arch. Otolaryngol.*, 1935, 22, 631.

The practical management of malignancies of the tonsil. C. L. GERSH. *Am. J. Surg.*, 1935, 30, 254.

Indications for tonsillectomy during the acute stage. A. PIRRO. *Presse med., Par.*, 1935, 43, 1735.

Complete removal of the tonsils and adenoids under general anesthesia without loss of blood. R. B. ROSSILL. *Laryngoscope*, 1935, 45, 891.

Neck

Cervical ribs. L. P. KASMAN and W. BELFANT. *Am. J. Surg.*, 1935, 30, 172.

Bilateral cervical rib. Unilateral Raynaud syndrome, late result of surgical intervention: removal of the rib and subclavicular sympathectomy. Secondary arteriectomy of the humeral artery. J. SENIQUE and M. ELON. *Bull. clin. Soc. nat. de chir.*, 1935, 61, 1073.

Retropharyngeal abscess. M. ALBRY. *Presse med., Par.*, 1935, 43, 1736.

Gonorrheal arthritis of the crico-arytenoid joint. P. L. FERRARI. *Rev. Assoc. med. argent.*, 1935, 20, 1031.

Metastatic epidermoid carcinoma in the neck. D. QUINN. *Am. J. Surg.*, 1935, 30, 227.

Cyclic response of the thyroid gland to experimental excitation and depression. H. B. FINEBERG. *Arch. Int. Med.*, 1935, 26, 811.

The thyroid and the liver. C. H. FRANK and R. B. BROWN. *West. J. Surg., Obst. & Gynec.*, 1935, 43, 106.

Lateral aberrant thyroid. A. G. HERSH. *Med. Rec., New York*, 1935, 142, 416.

Hypothyroidism. M. MONTGOMERY. *J. Med. Soc. New Jersey*, 1935, 32, 634.

Studies on the increased metabolism in hyperthyroidism. F. C. ANDERSON and D. McJUREN. *Ann. Int. Med.*, 1935, 9, 279.

Riedel's thyroiditis. R. L. MACHETTE and F. A. CHURCH. *Rev. med. quirurg. de patol. femenina*, 1935, 3, 242.

Toxic goiter. J. C. BROOKS. *J. Oklahoma State M. Ass.*, 1935, 25, 307.

Thyroidosis, its medical aspect. JOHN HODDER. *Brit. M. J.*, 1935, 2, 1011.

Thyroidosis, its surgical aspects. Sir T. D. THILL. *Brit. M. J.*, 1935, 2, 1014.

Spontaneous recovery in exophthalmic goiter. I. BRAM. *Med. Rec., New York*, 1935, 142, 415.

The treatment of Basedow's disease and hyperthyroidism. I. GOLDBLUM. *Semin. med.*, 1935, 42, 1167.

Basedow's disease and tuberculous. I. KUNITZ, ROTTER, LURY, and OTTAVIO. *Bull. et mem. Soc. med. d. l'hop. de Par.*, 1935, 51, 1432.

The treatment of Basedow's disease and hyperthyroidism. I. GOLDBLUM. *Semin. med.*, 1935, 42, 1015.

Basedow's disease complicated by complete arrhythmia and irreducible anastole cured by total thyroidectomy. L. FAVIER and J. PATIL. *Bull. et mem. Soc. med. d'hop. de Par.*, 1935, 51, 1435.

Rare tumors of the thyroid region. A. BILLI. *Clin. chir.*, 1935, 11, 863.

Thyroid carcinoma with metastasis in the ciliary body. H. C. ORR and I. I. JOHNSON. *Brit. J. Ophth.*, 1935, 19, 593.

Thyroid problems and end results of operations on the thyroid gland. R. S. DICKSON and G. CRILL, JR. *Surg. Clin. North Am.*, 1935, 15, 859.

Mitral stenosis with congestive heart failure treated by complete thyroidectomy. H. BAILEY. *Proc. Roy. Soc. Med. Lond.*, 1935, 29, 41.

Total thyroidectomy for intractable heart disease, a summary of two and one half years' surgical experience. D. D. BRELIN. *J. Am. M. Ass.*, 1935, 105, 1102.

Anesthesia for thyrocardiac patients. L. F. SISK. *J. Am. M. Ass.*, 1935, 105, 1667.

The technique of parathyroidectomy. I. J. MANFREDI. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 10, 871.

A new procedure for the treatment of a web in the larynx, report of a case. S. ICHIMARU. *Arch. Otolaryngol.*, 1935, 22, 597.

Productive fibrous stenosing laryngitis. R. PARDAL and J. T. ACOSTA SOJO. *Rev. Assoc. med. argent.*, 1935, 20, 901.

Rhabdomyoma of the vocal cord, report of a case. A. J. CRICOVANER. *Laryngoscope*, 1935, 45, 891.

The treatment of malignant tumors of the larynx. J. IAYRA and F. P. MACIAS. *Rev. Assoc. med. argent.*, 1935, 20, 1035.

Radiotherapy of cancer of the larynx. M. LENZ. *Am. J. Surg.*, 1935, 30, 259.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Electrical stimulation of points in the lumbosacral and mid-brain, the resultant alterations in blood pressure. H. KARAT, H. W. MAGDOFF, and S. W. RANSON. *Arch Neurol & Psychiat* 1935, 34, 931.

Congenital absence of the septum pellucidum, its diagnosis by encephalography. L. G. DYCK and L. M. DAVIS. *Ann J Roentgenol* 1935, 34, 573.

Brain and spinal cord injuries following lambar injections. W. PLANKER. 934. *Maenner W. Dissertation* [217]

A retained projectile in the occipital lobe. The migration of projectiles within the brain. A. VIOLATO. *Arch Ital. di chir* 1935, 40, 673.

Amenia following head injuries. W. R. RUSSELL. *Lancet*, 935, 329, 76.

Intracranial pressure in head injuries. A. A. ZIMMOID. *Arch. Surg.* 935, 31, 83.

Immediate treatment of craniocerebral trauma. D. O. VALLBO. *Rev. de chir. Bocharest*, 1935, 30, 48.

The modern treatment of craniocerebral injuries, with special reference to the maximum permissible mortality and morbidity. D. MURDO. *New England J Med* 1935, 2, 3, 603.

Prognostic and therapeutic value of cysternal puncture in craniocerebral injury. J. D'HANCOCK and M. D'HANCOCK. *Actas Soc. de ciruj. de Madrid*, 935, 4, 867.

Thyroid epilepsy. C. P. SYMONDS. *Lancet*, 1935, 30, 1817.

Extracranial and intracranial hemorrhage. J. G. LOVE. *Surg. Clin North Am.* 935, 5, 343.

Technique of hemostasis in the soft parts of the skull. B. SCHLESINGER. *Arch. f. klin. Chir.* 1935, 183, 369.

Multiple intracranial aneurysms. W. MAGDOFF. *Canada M. Ass. J.* 1935, 33, 40.

Evaluation of caloric tests in the localization of lesions of the posterior fossa, a study of forty verified cases. J. L. MAYRAUD and M. GROSSMAN. *Arch. Otolaryngol.* 1935, 2, 565.

The clinical aspects of frontal lobe disease. L. J. KARNOW. *J. Indiana State M. Ass.* 1935, 28, 568.

Changes in the blood sugar due to brain lesions. A. LOEY. *Deutsche Zeitsch. f. Chir.* 935, 845, 304.

An operative case of schistosomiasis cerebri. K. SAKIMOTO. *Arch. f. klin. Chir.* 935, 8, 404.

Osteitic abscess of the right temporal lobe. N. von SOUDON and V. M. EHLHART. *Rev. Assoc. med. argent.* 935, 49, 967.

Tumors of the brain. J. G. LOVE. *Surg. Clin North Am.* 1935, 5, 379.

Intracranial tumor. E. BRANWELL. *Brit. M. J.* 935, 2, 983.

A statistical study of 230 consecutive cases of intracranial tumor. A. LEY and A. E. WALKER. *Rev. de chir. de Barcelone*, 1935, 5, 97.

Cerebral aneurysm with arteriovenous fistula treated surgically with electrocoagulation, report of a case. W. L. BUTCHER and A. W. ANDERSON. *Surg. Clin North Am.* 935, 5, 377.

Tumors of the frontal lobe, an anatomical and pathological study. H. C. VOISARD, J. W. KERNORAN, and A. W. ANDERSON. *Arch. Neurol. & Psychiat.* 935, 34, 60, [216].

Tumors of the corpus callosum, pathological and clinical study. H. C. VOISARD and A. W. ANDERSON. *Arch. Neurol. & Psychiat.* 935, 34, 965. [219]

Removal of the left cerebral hemisphere, report of a case. R. ZOLLINGER. *Arch. Neurol. & Psychiat.* 1935, 31, 1935.

Postoperative cerebral edema. H. BOYD and L. SCHWARTZ. *Deutsche med. Wochenschr.* 1935, 1, 786. [209]

Meningitis. L. S. MIZNER. *Surg. Clin North Am.* 1935, 15, 1387.

Diffuse post-traumatic streptococcal meningitis, local encephalitis, probable ventricular fistula, cure by simple lambar puncture. O. FRANK and V. VETTER. *Rev. de chir. Bocharest*, 1935, 30, 36.

The prevention of postoperative extradural hematomas. J. L. POIRIER. *Arch. Neurol. & Psychiat.* 1935, 34, 966.

Epidual tumor. LAPORTE and GONZALEZ. *Actas Soc. de ciruj. de Madrid*, 1935, 4, 305.

Creation of convulsive seizures following the injection of alcohol into the sphenoparietal ganglia. Three cases. W. SPANER. *Laryngoscope*, 935, 45, 885.

Trigeminal neuralgia: diagnosis and treatment. A. W. ANDERSON. *Surg. Clin North Am.* 1935, 5, 399.

A case of tic docteur cured by laryngotomy. M. KOSKORIN. *Laryngoscope*, 935, 45, 898.

Acoustic neuromas in the stage of normal intracranial pressure. An analysis of thirteen early and late cases. W. B. HANCOY. *New York State J. M.* 1935, 35, 143.

Spinal Cord and Its Coverings

Acute anterior poliomyelitis. R. T. COSTELLO. *Surg. Clin North Am.* 1935, 15, 1393.

Tumors of the spinal cord. W. McK. CARR. *Surg. Clin North Am.* 1935, 15, 1371.

Report of a study of tumors of the spine in spinal meninges. G. MONTANARI. *Policlin. Rome*, 1935, 41, sec. chir. 573.

Peripheral Nerves

Observations on peripheral crushing nerve injuries. J. D'HANCOCK, M. D'HANCOCK, and G. LARCA. *Actas Soc. de ciruj. de Madrid*, 935, 4, 831.

The diagnosis and treatment of some of the more common peripheral nerve lesions. W. McK. CARR. *Surg. Clin North Am.* 935, 5, 337.

Neurosis. F. P. MONTGOMERY. *Surg. Clin North Am.* 935, 5, 1397.

The treatment of polyneuritis. I. B. WICKERLE. *Med. Clin North Am.* 935, 9, 943.

Sympathetic Nerves

Central control of the sympathetic nervous system. J. BRATTON. *Brit. J. Surg.* 1935, 3, 444. [220]

The technique of sympathetomy. E. D. THOMPSON. *Brit. J. Surg.* 935, 3, 445. [220]

The results of sympathetomy: an analysis of the cases reported by fellows of the Association of Surgeons. J. P. ROSE. *Brit. J. Surg.* 1935, 3, 433. [221]

Scleroderma with sclerodactylitis treated by cervical sympathetomy. D. FLETCHER and T. FLETCHER. *Proc. med. Soc.* 1935, 43, 7432.

Essential hyperhidrosis cured by sympathetic gangliotomies and trunk resection. A. W. ANDERSON, W. McK. CARR, and G. E. BROWN. *Arch. Surg.* 935, 3, 794.

Interthoracic sympathetomy in trophic disturbances of the lower extremity. D. DAVENPORT, A. ABRAHAM, and I. MARCOT. *J. de chir.* 1935, 40, 657.

Resection of the splanchnic nerves Physiological basis, indications and results Operative techniques J MEILLÈRE and J BRÉHANT *J de chir*, 1935, 46 727 [222]

Miscellaneous
Visceral and referred pain L J POLLOCK and I DAVIS *Arch Neurol & Psychiat.*, 1935, 34 1041 [223]

SURGERY OF THE THORAX

Chest Wall and Breast

Bleeding from the nipple E BAZTERRICA and E M PÁEZ *Bol Soc de obst y ginec de Buenos Aires*, 1935, 14 543

The pathogenesis of galactorrhea, with remarks on the hormonal processes in physiological lactation E J KRAUS *Arch f Gynaek*, 1935, 150 380 [224]

Tuberculosis of the breast. F ELLIS RIBEIRO *Rev Brasil de cirug*, 1935, 4 369

Benign fibrous tumors of the male breast. T DE CHOLNOKI *Am J Surg*, 1935, 30 208

Fibro-adenoma of the breast during pregnancy and lactation C S MORAN *Arch Surg*, 1935, 31 688

Cancer of the breast O J CAMPBELL *J Lancet*, 1935, 55 700

Cancer of the breast J J MORTON and S J STABINS *New York State J M*, 1935, 35 1137

Carcinoma of the male breast E PALUMBO *Riforma med*, 1935, 51 1386

Traumatic carcinoma of the breast E RIXFORD *Ann Surg*, 1935, 102 914

Gelatinous or colloid carcinoma of the breast N C ORTIZ. *Bol Soc de obst y ginec de Buenos Aires*, 1935, 14 499

Gelatinous cancer of the breast S TIRELLI *Policlin*, Rome, 1935, 42 sez chir 615 [224]

Scirrhus carcinoma of the breast remaining stationary for many years. BOESCH *Schweiz med Wchnschr*, 1935, 2 668

The genetic appearance of spontaneous carcinoma of the mammary gland in the C₃H mice L C STRONG *Am J Cancer*, 1935, 25 599

Metastasis of carcinoma of the breast to the supra-clavicular lymph nodes E T LEDDY and A U DESJARDINS *Am J Cancer*, 1935, 25 611

The treatment of mammary cancer H M MORAN *Brit. M J*, 1935, 2 889

A statistical study of the operative results in carcinoma of the breast. H. BAATZ *Zentralbl f Chir*, 1935, p 2066

The pathogenesis of fibro-adenosarcoma of the breast. R C. GRAUER and G H ROBINSON *Arch Surg*, 1935, 31 677 [224]

Trachea, Lungs, and Pleura

Modification of the Jackson bronchoscope to permit retrograde inspection of the bronchi of the upper lobes F VISTREICH *Arch Otolaryngol*, 1935, 22 634

Staples and double pointed tacks as foreign bodies, mechanical problems of bronchoscopic extraction C JACKSON and C L JACKSON *Arch Otolaryngol*, 1935, 22 603

Foreign body in the bronchus and pulmonary tuberculosis G PORTMANV and H RETROUYEV *J de méd de Bordeaux*, 1935, 112 743

Clinical manifestations of tracheal and bronchial obstruction with certain bronchoscopic observations P P VINSON *Med Clin North Am*, 1935, 19 453

A case of traumatic pneumothorax following rupture of the lung H C WENNEVOLD *Norsk Mag f Lægevidensk.*, 1935, 96 770

A new case of benign spontaneous pneumothorax caused by primary tuberculous infection L E. ONTANEDA and R Q PASQUALINI *Rev Asoc. med argent.*, 1935, 49 907

Spontaneous hemopneumothorax O P AGUILAR and J B FERRADÁS *Semana méd*, 1935, 42 1135

Echinococcus in the lung G CLAESSEN *Acta radiol*, 1935, 16 60

Syphilitic gumma of the lung, a case report P E WIGBY and C B SANDERS *Radiology*, 1935, 25 629

Surgery in pulmonary tuberculosis—the present status I BERRY *New York State J M*, 1935, 35 1080

Surgical treatment of pulmonary tuberculosis J KOMJENOVIC. *Verhandl d I Kong jugoslav chir Ges*, 1934, 4 445

A new surgical operation for pulmonary tuberculosis Venous stasis in the pulmonary lobes R VALKÁNYI *Orvosképzés*, 1935, 25 32

Newer attempts at the operative treatment of pulmonary tuberculosis REHBERG *Zentralbl f Chir*, 1935, p 2091

Methods of surgical treatment for tuberculosis of the lungs and pleura M KOSTIĆ. *Verhandl d I Kong jugoslav chir Ges*, 1934, 3-4 339, 379

The surgery of pulmonary tuberculosis, its indications, techniques, and results P N CORYLLOS *Quarterly Bull Sea View Hosp*, New York, 1935, 1 89 [225]

Tuberculosis cavities, their pathogenesis, mechanism, and treatment. P N CORYLLOS *J Med Soc. New Jersey*, 1935, 32 657

Lung injury associated with the surgical treatment of pulmonary tuberculosis M KOLIBAŠ *Verhandl d I Kong jugoslav chir Ges*, 1934, 4 461

Collapse therapy of the lung A BIASINI *Arch ital di chir*, 1935, 40 589 [226]

The mechanisms of healing in collapse therapy M PINNER. *Ann Int. Med*, 1935, 9 501

Artificial pneumothorax. G S CLINKSCALES *J South Carolina M Ass*, 1935, 31 213

Accessory operative procedures in artificial pneumothorax I Thoracocautic of Jacobaeus II Oleothorax K. TOMAŠIĆ. *Verhandl d I Kong jugoslav chir Ges*, 1934, 4 421

Indications and technique for puncture and evacuation in serofibrinous pleurisy in therapeutic pneumothorax D MICHETTI and A. ROULET *Presse méd.*, Par, 1935, 43 1605 [226]

Phrenic exeresis V KAZIMA. *Verhandl d I Kong jugoslav chir Ges*, 1934, 4 432

The course of disease in tuberculous diabetes treated by phrenicectomy R A IZZO and A CASANEGRA *Semana méd*, 1935, 42 1217

Surgical anatomy and variations of the phrenic nerve. V BUKUROV *Verhandl d I Kong jugoslav chir Ges*, 1934, 4 438

Thoracoplasty and thoracic muscle as a physiological pulmonary plug Also a contribution to the knowledge of degeneration of muscle A. KUŁCZYCKI and G NOWORNY *Bull internat d l'Académie Polonaise d sc. et d. lettres*, 1935, p 135 [227]

Re-ossification of the ribs, elastic thoracotomy A MAURER and DREYFUS-LE FOYER. *Bull et mcm Soc nat. de chir*, 1935, 61 1092

- Suppositions of the lung. Present-day ideas with regard to diagnosis and treatment. J GARCÍ OTTEO. An de ciruj. Havana, 1935, p. 86.
- Non tuberculous pulmonary sequestration. C. DODD. New York State J. M. 1935, 35, 666.
- Pyopneumothorax occurring as a complication of acute pulmonary sequestration. C. B. WOOD. Am J Surg. 1935, 50, 249.
- Lung abscess. E. N. PETERSON. J-Lancet, 1934, 55, 731.
- Chronic pulmonary abscess. A. J. PAVLOVICH and L. VORONIA. Bol y trab Soc de ciruj de Buenos Aires, 1935, 19, 806.
- Pulmonary abscess and pulmonary gangrene: an analysis of ninety cases observed in ten years. B. S. KLINE and S. S. BERNER. Arch Int Med. 1935, 50, 733. [227]
- Patrid lung abscess with massive hemoptysis. J. B. STENLICK. Am J Surg. 1935, 50, 356.
- Circumscribed chronic fetal lung abscess and its treatment by pleurotomy. R. DE CARVALHO. Rev Assoc. med argent. 1935, 49, 973.
- The treatment of lung abscess; 101 cases. H. C. LITTLE. Illinois M J. 1935, 68, 440.
- Factors causing bronchiectasis, their clinical application to diagnosis and treatment. W. P. WALKER. J. Am M. Ass. 1935, 13, 666.
- Bronchiectaticous fistula. CHARRON. Bol y trab Soc. d. ciruj de Buenos Aires, 1935, 19, 900.
- The treatment of pleuropulmonary fistulas. A. SCHICK. Med Klin. 1935, 1, 647.
- The peribronchial muscle flap in the closure of persistent bronchopleural fistula. O. H. WANDERSTEIN. J Thoracic Surg. 1935, 5, 27. [229]
- Cystic lungs. H. KJELLBERG. Acta med Scand. 1935, 66, 407. [235]
- Congenital cystic lung. A. A. ROWLAND. Brit M J. 1935, 837.
- A case of pigistic glaucous cyst of the lung. N. G. DE VEGA. Med rev mex. 1935, 6, 57.
- Chemical and therapeutic study of hydatid cyst of the lung. A. POE E. MURRAY and A. NAY. Rev de chir. Bucharest, 1935, 38, 1.
- Operated cases of pulmonary tumors. OVERTON. Svenska Lakarsamfund, 1935, p. 133.
- Cancer of the upper respiratory tract. L. R. BOYD. J. Lancet, 1935, 35, 70.
- The clinicopathological classification of carcinomas of the lung. S. E. MOORE. J Med Soc New Jersey. 1935, 12, 630.
- The etiology of bronchogenic carcinoma. F. TITUS. Rev. bulg. d. sc. med. 1935, 7, 640.
- Röntgen diagnosis of primary carcinoma of the lung. W. KILBY. J Med Soc New Jersey. 1935, 12, 631.
- Primary cancer of the lung. MARCILL. Arch de med. chir. y specul. 1935, 6, 664.
- Primary carcinoma of the lung—personal endoscopic study. H. B. OVERTON. J Med Soc New Jersey. 1935, 12, 635.
- Röntgen therapy of primary carcinoma of the lung. M. FARMAN. J Med Soc New Jersey. 1935, 12, 648.
- The surgical treatment of primary carcinoma of the lung. R. H. DIFFENBACH. J Med Soc New Jersey. 1935, 12, 645.
- Some experiences in the surgical treatment of pulmonary and pleural diseases. A. RADNAYI. J. M. 1935, 35, 666.
- Cholesterina pleuritis, clinical and experimental contribution. A. FASIS. Polich. Reuss, 1935, 4, sec. 101, 57.

- Late results following extensive drainage for tuberculous pleurisy. M. SNOYER and M. SNOYER. Verhänd. d. Kong. Jap. chir. Ges., 1934, 4, 409.
- Acute empyema of the pleura. H. LILIENTHAL. New York State J. M. 1935, 35, 1061.
- Empyema in children and its treatment. S. SNOYER. Verhänd. d. Kong. Jap. chir. Ges., 1934, 4, 433.
- Pleural empyema in children and its treatment. H. LILIENTHAL. E. GERMANN. 1934. Halle-Wittenberg, Dissertation.

Heart and Pericardium

- The development of a new blood supply to the heart by operation. C. B. BARK. Ann Surg. 1935, 6, 301. [236]
- The results of the end of twenty six years of service of the heart for gunshot injury. E. LINDE. Zentralbl. f. Chir., 1935, p. 1874.
- The diagnosis of tumors of the heart and pericardium. S. A. SHELSTON. Texas State J. M. 1935, 35, 451.
- Adherent pericardium as a cause of cardiac shock (187). S. WILKS. Guy's Hosp. Rep. Lond., 1935, 45, 364.
- Chronic constrictive pericarditis. P. D. WHITE. Guy's Hosp. Rep. Lond. 1935, 45, 258.
- Voluminous congenital intrapericardial tumor. J. MIRON and L. GERMANN. Gyök. elnök. 1935, 3, 154.

Esophagus and Mediastinum

- A discussion of the essential procedures employed in the diagnosis of diseases of the esophagus. E. B. FARMAN. South M J., 1935, 28, 93.
- Congenital esophageal stenosis. K. HARTMANN. 1935. Kiel, Dissertation.
- The fate of patients with congenital structure of the esophagus. W. UHN. 1935. Tübingen, Dissertation.
- The technique of ascending without and in the treatment of congenital narrowing of the esophagus. G. S. TORSORE. Zentralbl. f. Chir. 1935, p. 1047.
- Gangrene due to fusiform abscesses following radical treatment of constricting lesion of the esophagus. L. KRISTOFF. Nord med. Tidsskr. 1935, p. 17.
- Complicated course of case of traction diverticulum of the esophagus. CLARKE. Schwed. med. Wochenskr. 1935, 2, 669.
- A case of idiopathic dilatation of the esophagus. T. D. SCHAFER. Canadian M. Ass. J. 1935, 33, 534.
- Carcinoma of the lower end of the esophagus. R. MURPHY. Lancet, 1935, 229, 109.
- Primary esophageal carcinoma, with especial reference to a non-stenosing variety, clinicopathological study based on 26 necropsies. R. W. MATTHEWS and T. J. SCHEPERS. J. Am M. Ass. 1935, 5, 1501.
- A case of intrathoracic endometrial cyst in the posterior mediastinum in newborn infant. K. H. STROCK. Zentralbl. f. Gynäk. 1935, p. 278.
- The diagnosis and surgical treatment of anterior and posterior mediastinal tumors, report of case of posterior mediastinal tumor. S. W. HARRINGTON. New York State J. M. 1935, 35, 1073.

Miscellaneous

- Traumatic diaphragmatic hernia. A. HART. Oryol. bid. 1935, p. 801.
- Traumatic hernia of the diaphragm. BERTNER. Zentralbl. f. Chir. 1935, p. 801.
- Operative technique for encysted intrathoracic fungus. J. BOROCH. Halb. et inf. med. soc. med. de chir. 1935, 1, 38.

The importance of study of the glucose, protein, and water metabolism in the diagnosis and prognosis of liver insufficiency. J J BERTRAND, C I CARRERA CASATI, and D BARRIOS. *Arch argent de enferm d apar digest* 1935 10 569

The jaundiced patient. I COHN. *Am J Surg*, 1935, 10 266

Several factors in the differential diagnosis between icterus due to obstruction of the common duct and icterus due to hepatitis. M BRILL and J CORRIE. *Presse méd*, Par 1935 43 1705

Four clinical types of jaundice arising from atypical blood chemistry. C H WATKINS. *Med Clin North Am*, 1935 19 345

Transfusion for jaundiced patients. I S JENN, A M SWEET, and M T HOFNER. *J Am M Ass*, 1935 105 1051 [237]

The content of direct and indirect bilirubin in the blood serum. Its importance to the physician in surgery of the liver and bile ducts. A J BRADLEY, C VILLASO S, 1912, and A RAICIN. *Ref med quirurg de patol femenina* 1935 3 354 [238]

Traumatic rupture of the liver. W M SHIMON and T JOHNSON. *New England J Med* 1935 213 650

The hepatopancratic syndrome in surgery. G MOSTI MARINI. *Pol clin*, Rome 1935, 42 sez chir 573

The prognostic significance of a spontaneous duodenum in acute or subacute disease of the liver. C M JONES and I B EYON. *New England J Med*, 1935 213 697

Pathological changes of diseased gall bladders: a new classification. I ANDRUS. *Arch Surg*, 1935, 31 707 [239]

Congested amoebic hepatitis of tumor type. J J BREWER and T J MASCHKE. *Arch argent de enferm d apar digest* 1935 10 589

Multiple liver abscesses. K A TEARMAN. *Illinois M J*, 1935, 69 419

The value of duodenal intubage in the diagnosis of hydatid cyst of the liver opening into the biliary passages. P MOIRAND and C DE LANA. *Presse méd*, Par, 1935, 43 1550

Primary epithelioma of the liver. D COTILLAS and M A ETCHEVERRY. *Rev méd-quirurg de patol femenina* 1935, 3 257

Metastatic carcinoma of the liver with pain at the onset. A CARO. *Bull et mém Soc méd d hop de Par* 1935, 51 1363

Surgery of the liver and extrahepatic biliary passages. P WALZEL. *Med Klin*, 1935 2 997

Studies of gall bladder function. XII The composition of "white bile." C RIGGI, I S RAYNE, C G JOHNSTON, and P J MORRISON. *Am J M Sc* 1935 109 635

Further discussion of the relations of the antrum and cap to the gall bladder as factors in emptying the gall bladder. N B NEWCOMB and F NEWCOMB. *Radiology*, 1935, 25 547

The clinical value of cholecystography. R CARRANCO. *Trujillo Rev med Lat Am* 1935 20 1239

The low lying gall bladder. FARO DERO, and CAPLOTTI. *Presse méd*, Par, 1935, 43 1665

The late results of operations on the biliary tract in 359 cases with cholecystographic studies. J H SAINT. *Brit J Surg*, 1935, 23 299 [239]

Cholecystic disease. A comparison of the clinical with the cholecystographic data concerning 500 patients not operated on. B R KIRKLEY and T W BLAKE. *J Am M Ass*, 1935, 105 1416

Traumatic rupture of the gall bladder. A case report of such rupture. A V CORRE. *J Indiana State M Ass*, 1935, 28 590

The experimental production of cholesterosis of the gall bladder with observations on the cholesterol absorptive properties of the gall bladder wall. I M ROSSIGNOL and L BELMAY. *Surg, Gynec & Obst*, 1935, 61 585

Two personal methods for the treatment of chronic cholecystitis. I MACILLI, A GRIGORASCO, and Z GORBOLOSCIA. *Presse méd Par*, 1935, 43 1708

The diagnosis of chronic cholecystitis and cholelithiasis. J I SUTTON JR. *Med Clin North Am* 1935, 19 641

Acute perforation of the gall bladder with generalized choleperitonium. I LAPSO. *California & West Med*, 1935 43 350

The significance of pain and vomiting in cholelithiasis. R ZOLLINGER. *J Am M Ass*, 1935 105 1647

The development of simple necrosis of the gall bladder and pancreas. An experimental and clinical study. J HORNSTEIN. *Arch Clin Chir*, 1935 182 443

Cholecystostomy and gastric ulcer. P MAILLIER, GUY and P VAN DER LINDE. *J de chir*, 1935, 46 676

Experimental study of the changes in the secretion of the mucosa of the gall bladder following cholecystostomy. P MAILLIER, GUY, M CHAMBER, P VAN DER LINDE, and P CHOPART. *J de chir*, 1935 46 684

The management of two cases of disease of the biliary tract following cholecystectomy for stones. P MCCOY. *Med Clin North Am*, 1935 19 689

The relief of chronic arthritis by cholecystectomy: recurrence apparent cure following cholecystectomy. H PATTERSON. *Med Clin North Am*, 1935, 19 697

Cholecystectomy following total abdominal hysterectomy and bilateral salpingo-oophorectomy for carcinoma of the fundus, cholecystectomy in the presence of a large ovarian cyst. A S COLEMAN. *Surg Clin North Am*, 1935 15 1309

Physiopathology of the extrahepatic bile tracts. R I MASCIOTTA. *Rev méd-quirurg de patol femenina*, 1935 3 125

The reaction of Takata in the diseases of the extrahepatic passages. G MANZONI. *Riforma med* 1935 51 1508

Residual lithiasis of the common duct and Pancreatic technique for that condition. R I MASCIOTTA and R MARTINEZ DE HOS. *Rev méd-quirurg de patol femenina* 1935, 3 108

Transduodenal resection of the ampulla of Vater for carcinoma of the distal end of the common duct, with restoration of the continuity of the common and pancreatic ducts with the duodenum. A C HUNT and J W BROWN. *Surg, Gynec & Obst* 1935, 61 651

Blood sugar concentration and the external secretion of the pancreatic gland. B P BARNES. *J Am M Ass*, 1935, 105 1659

The surgical treatment of hyperinsulinism. I LUPP. *Riforma med*, 1935 51 1364

Acute inflammation of the pancreas, a cause of epigastric pain in gall bladder disease and of recurrent pain after cholecystectomy. R ELMAN. *Surg, Gynec & Obst*, 1935, 61 670

Acute pancreatitis in childhood. R H DOBBS. *Lancet*, 1935, 229 680

Suppurative pancreatitis. R I MASCIOTTA and J F FERRANDO. *Rev méd-quirurg de patol femenina*, 1935, 3 485

Tumors of the head of the pancreas. W T COLCHIN, and J M McCAUGHAN. *J Missouri State M Ass*, 1935, 32 425

The syndrome of adenoma of the pancreas. I GRINTER, S E SOLTZ, and P HAUN. *Bull Neurol Inst New York*, 1935, 4 310 [239]

Mobile spleen. HARTMAN. *Bull et mém Soc. nat de chir*, 1935, 61 1030

The heterotopoeutic equilibrium and emergency splenectomy C. A. DOAN, G. M. CURTIS, and B. K. WIDEMAN *J Am M Ass* 1935, 103: 567

Torsion of the spleen associated with rupture Y. CANTY *Lancet*, 1935, 230: 275

Cysts of the spleen H. F. COE *Beltr. e. kho. Chir* 1935, 62: 99

Splenectomy: operative procedure and after-care A. T. BARNES *Canadian M Ass J* 1935, 33: 482

Miscellaneous

Vasotocutaneous and cutaneous abdominal reflexes H. I. BROW and E. S. TONKIN *Acta med Scand* 1935, 86

The psychic effect of abdominal trauma B. B. CHODIN *Med Clin North Am* 1935, 19: 837

The conduct of operation for intra-abdominal foreign bodies of unknown origin E. REBENTZ *Zentralbl. f. Gynaek* 1935, p. 1347

A discussion of some of the fundamental principles in caring for a patient with an acute abdomen H. E. HANSON *J South Carolina M Ass* 1935, 3: 222

Embryonic abdomen G. T. TILLEY, J. J. South Carolina M Ass 1935, 3: 207

The Bismarck drainage in the operation treatment of subphrenic abscess G. FORTINCHON *Deutsche Zeitsch. f. Chir.* 1935, 243: 316

Bold retroperitoneal herniotomy operations A. F. LAMAY and C. A. LEUNG *Memorias Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 19: 837

Bold retroperitoneal treatment, treatment, late results MARIANI *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 19: 870

GYNECOLOGY

Uterus

Hysteroscopy demonstration HAMANT and DURAND *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24: 516

Ultrasonography E. B. PERRY *J Natl M Ass* 1935, 7: 55

The therapeutic value of hysteroscopy in sterility J. GRIENSTADT and R. KLATTMAN *Roentgenprax* 1935, 7: 32

The escape of lipiodol into the utero-ovarian vascular system in hysteroscopy Y. Y. LEE and S. H. TAO *Clinica M J*, 1935, 49: 24

The surgical treatment of teratoma retrodisplacement C. A. COLLIERO *Rev. med. de ciruj. ginec. y obstet.* 1935, 3: 679

The place of colpoclysis in the treatment of uterus and vaginal prolapse L. E. PRADY *Am J Obst. & Gynec.* 1935, 30: 544 [241]

Indications for hysterectomy BARTHELEMY *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24: 518

Postoperative course following Wertheim's hysterectomy J. M. SANCHEZ *Rev. de ciruj. Hosp. Jorcas*, Mex. 1935, p. 58

Results of fixing the uterus to the abdominal wall, personal experiences H. BECK *Gaek. polska*, 1935, 14: 587

Tubal neoplasms—in retrospect G. DE TARNOWSKY *Am J Obst. & Gynec.* 1935, 30: 606

The musculature of the uterus from the functional standpoint L. POROVIC *Polski Pismo radjol.* 1935, 8-9: 217

The irritability of the uterine musculature and the galvanic irritability of the neuromuscular system A contribution to the value of the reaction of hypophyseal substances on the uterine musculature I. KLATTMAN and Z. RUTTEN *Zentralbl. f. Gynaek.* 1935, p. 2050

Rupture of the uterus during curettage with expansion of the intestines Case report R. F. WARD and H. A. METZ *New York State J. M.* 1935, 25: 60

Dangers of intra-uterine pessaries H. GRIENSTADT *Zentralbl. f. Gynaek.* 1935, p. 68

Hemotomata J. A. McGUIRE and W. B. HARRIS *Am J Obst. & Gynec.* 1935, 30: 704

The causes and treatment of uterine hemorrhage H. RUTTEN *Med Welt* 1935, p. 82

The etiology of hemorrhage in the uterine stump following supravaginal amputation L. MICHON *1934 Koenigsberg. Pr. Dissertation*

Lesions of the uterine cervix M. C. PIERCE *Med Clin North Am* 1935, 19: 347

The surgical significance of endometriosis J. C. MANN *Ann. Surg.* 1935, 101: 819

Artificial endometriosis of the cervix O. FRIEDL and L. KRAUS *Zentralbl. f. Gynaek.* 1935, p. 1683

A cyst of the uterine cervix A. FALSA and M. V. FALSA *Bol. Soc. de obst. y ginec. de Buenos Aires*, 1935, 19: 447

Bleeding from uterine fibroids K. JÄNÄN *Roest. Chir. Gynaek. C. gynaek.* 1935, 24: 30

The treatment of bleeding myoma K. JÄNÄN *Roest. Chir. Gynaek. C. gynaek.* 1935, 24: 30

Excision of myomas L. SCHULZ *Monatssch. f. Geburtsh. u. Gynaek.* 1935, 99: 89

Malignant myoma J. McFARLAND *Am J Cancer* 1935, 5: 590 [241]

Cancer of the uterus H. C. TAYLOR, JR. *J. Lancet* 1935, 25: 697

A statistical study of the relation of parity to carcinoma of the cervix P. TONKIN *Am J Cancer*, 1935, 5: 624

The value of irradiation for carcinoma of the cervix in the light of histological studies H. SCHULTZ *Polski Onk. Lek.* 1934, 3: 740, 77

The prognosis of cancer of the cervix treated by irradiation N. B. SANCHEZ *New York State J. M.* 1935, 25: 133

Multiple lymphatic metastases in case of inbred carcinoma of the cervix G. JÄNÄN *J. de med. de Bordeaux*, 1935, 747

Experience with multiple-dose roentgen therapy in malignant diseases of the uterus and ovaries W. P. HARRY *Am J Obst. & Gynec.* 1935, 30: 613 [241]

Radiation treatment of carcinoma of the cervix A. H. M. VAN ROOY, J. W. F. H. JÄNÄN and W. P. HARRY *Ned. T. gynaek. General.* 1935, p. 4915

Radiation puncture in the treatment of carcinoma of the cervix H. GENTIS *Presse med. Par.* 1935, 45: 1635

Vaginal stenosis and pyometra following radium therapy for cancer of the cervix M. MARIANI *Lancet* 1935, 25: 677

Local accidents in the radium therapy of uterine cancer JÄNÄN and AUSTIN *Rev. franc. de gynéc. et obstet.* 1935, p. 677 [241]

Carcinomatos metastases as the accession secondary to carcinoma of the uterus operated upon more than 20 years previously and non-recurrent locally H. PONS *Gynaec. et obst.* 1935, 33: 447

Adnexal and Peritubal Conditions

Sympathetic hemorrhage in adnexal diseases H TISER. Rozhl. Chir a Gynaek. C gynaek., 1935, 14 98

The conservative treatment of adnexal inflammations and its results in the Posen Clinic. B WALCZAK. Ginek. polska, 1935, 14 316

Acute adnexal tuberculosis N C LAPEYRE and H ESTOR. Bull. Soc. d'obst. et de gynec. de Par, 1935, 24 530

When should one operate upon inflammatory adnexal tumors and when should they be treated conservatively? H LYMER. Med Welt, 1935, p 921

Torsion of the fallopian tubes S STOV. Magy Nőgyógy, 1935, 4 138

Cold abscess of the fallopian tubes PAUCOT. Bull. Soc. d'obst. et de gynec. de Par, 1935, 24 507

Fibroma of the fallopian tube N P COSTA and A FALSA. Semana méd., 1935, 42 1214.

Nodose tubal lesions. Bilateral ampullary adenomyoma of the endometrioid type associated with calcified fibrous tuberculous salpingitis. V PUGLIATTI. Arch di ostet. e gynec., 1935, 42 651 [242]

Primary carcinoma of the fallopian tube W T DANNREUTHER. Am. J. Obst. & Gynec., 1935, 30 724

The technique and practical value of tubal insufflation J NOVAK. Med Klin, 1935, 1 480

Anatomical changes in the ovary in cases of fallopian-tube inflammations W BOBRZYŃSKI. Ginek. polska, 1935, 14 344

Corpora atresia and corpora albicantia in the functional cycle of the ovary SODANO. Arch di ostet. e gynec., 1935, 42 569

A biological study of the hormones of the corpus luteum I ERICO. Rev. Soc. argent. biol., 1935, 11 417

Intrapertoneal hemorrhage of ovarian origin (with the exception of such hemorrhage occurring in ectopic pregnancy) E DELANNOY. Bull. Soc. d'obst. et de gynec. de Par, 1935, 24 501

Intrapertoneal hemorrhage of non-gravid origin LOYON and CABANAC. Bull. Soc. d'obst. et de gynec. de Par, 1935, 24 522

Gigantic ovarian cyst J J McGRATH and S EISS. Am. J. Surg., 1935, 30 345

A case of right parovarian cyst with herniation through the inguinal canal. C F CROCE and F BAGNASCO. Semana méd., 1935, 42 1155

The hormonal action of ovarian tumors E ZIEKUND. Rozhl. Chir a Gynaek. C gynaek., 1935, 14 122

An anatomical and clinical contribution regarding folliculoma of the ovary M CAMPANA. Clin. ostet., 1935, 37 589

Ovarian tumors with endocrine significance. J V MEIGS. Ann. Surg., 1935, 102 834 [242]

The histogenesis of certain ovarian tumors and their biological effects S H GEIST. Am. J. Obst. & Gynec., 1935, 30 650

Granulosa-cell tumor C GÁLA and F SKORPIL. Rozhl. Chir a Gynaek. C gynaek., 1935, 14 193

Krukenberg tumor E A FENNEL. Am. J. Surg., 1935, 30 376

Unilateral Krukenberg tumor H G MUELLER. Monatsschr. f. Geburtsh. u. Gynaek., 1935, 99 348

Brenner tumor of the ovary P H SMITH. Am. J. Obst. & Gynec., 1935, 30 734

The problem of malignant tumors of the ovary. I STOIA and P STĂNCULESCU. Rev. științ. med., 1934, 23 1579 [242]

Clinical results of ovarian grafts L MAYER. Bruxelles-méd., 1935, 16 1

External Genitalia

Biology of the vagina R KESSLER. Clin. ostet., 1935, 37 626

The effect on vaginal development produced by the injection of 30 mgm of benzoate of folliculin in the case of atrophy following total hysterectomy R. PROUST, R. MORICARD, and R. PALMER. Bull. et mém. Soc. nat. de chir., 1935, 61 1100

Congenital absence of the vagina A E KANTER. Am. J. Surg., 1935, 30 314

The pathology and therapy of vaginal discharges R. JOACHIMOVITS. Wien. klin. Wchnschr., 1935, 1 759 [243]

The treatment of so called non specific leucorrhea. E KLAFTEN. Wien. klin. Wchnschr., 1935, 2 1021

Trichomonas vaginalis vaginitis J W HUFFMAN. Am. J. Surg., 1935, 30 312

Theelin therapy in vulvovaginitis R B PHILLIPS. New England J. Med., 1935, 213 1026

The treatment of senile vaginitis with ovarian follicular hormone M E DAVIS. Surg., Gynec. & Obst., 1935, 61 680

Tuberculosis of the vagina V DEPPISCH. Zentralbl. f. Gynaek., 1935, p 2240

A case of vesicovaginal fistula of rare etiology N J LJUBIMOW. Zentralbl. f. Gynaek., 1935, p 2108

The treatment of vesicovaginal fistulas N F MILLER. Am. J. Obst. & Gynec., 1935, 30 675

Bilateral ureterovaginal fistula. Implantation of the ureter into the bladder seven and eleven months respectively following the accident E von GRAFF. Zentralbl. f. Gynaek., 1935, p 2110

Hydrocolpos and hydrometra in vaginal atresia in the aged H MARKUS. Zentralbl. f. Chir., 1935, p 2233

Genital hemorrhage due to primary ulcerating syphiloma of the vaginal fornix, erroneously diagnosed as abortion or epithelioma. R SASSI. Clin. ostet., 1935, 37 605

Substernal vaginal fibroma and pregnancy, myomectomy, normal delivery DELANNOY and DÉMARÉZ. Bull. Soc. d'obst. et de gynec. de Par, 1935, 24 504

Hydatid cyst of the right labium majora and the mechanism of its production N ANAGNOSTIDIS. Gynec. et obst., 1935, 32 356

A rare case of myxolipoma of the vulva TALAMO. Arch. di ostet. e gynec., 1935, 42 635

Kraurosis vulvae (leucoplakia) and scleroderma circumscripta, a comparative histological study L W KETRON and F A ELLIS. Surg., Gynec. & Obst., 1935, 61 635

Three recent cases of cancer of the vulva operated upon in the Morcos Hospital F REYES. Rev. de cirug., Hosp. Juarez, Mex., 1935, p 493

Pre-operative and postoperative care in perineorrhaphy D I OROZCO. Rev. de cirug., Hosp. Juarez, Mex., 1935, p 585

Miscellaneous

Gynecology in 1934 C LATATU. An. de cirug., Havana, 1935, 5 5

A consideration of the phenomenon of ovulation and its relation to the sex cycle I F STEIN. Am. J. Obst. & Gynec., 1935, 30 710

Menstrual changes in the bladder mucosa O SAITZ. Rozhl. Chir a Gynaek. C gynaek., 1935, 14 110

The strain of school life on girls during the early menstrual period D J G JOHNSTON. Brit. M. J., 1935, 2 892

Systematic variation in the human menstrual interval O W RICHARDS. Am. J. M. Sc., 1935, 190 641

Vicarious menstruation. P E. BORRÁS. Rev. méd. d. Rosario, 1935, 25 904.

The metrorrhagic type of functional disturbance in young women. D. G. DRIES. *Med Clin North Am* 1935, 19, 159.

Metrorrhagia and uterine stenosis. E. GOMBERG. *Bull Soc d'obst et de gynéc de Par* 1935, 24, 324.

Menstrual disturbances following unilateral removal of the tube and ovary. J. HONIGSMAN. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 101.

Abortion and the menstrual cycle. V. SEAR and H. TRAM. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 23.

The hormonal treatment of menstrual disturbances and its theoretical basis. A. WHEATMAN. *Acta obst et gynec. Scand* 1935, 5, 251. [248]

The uterine mucosa in the menopause. W. BRIDGEMAN. *Zentralbl f Gynaek* 1935, p. 995.

The treatment of pre-characteristic functional hemorrhage. F. HONIGSMAN. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 113.

The treatment of climacteric hemorrhage. J. OBRIST. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 117.

Histological and anatomical study of metrorrhagia in the menopause. A. VITALI. *Chir obst* 1935, 37, 177.

Indications for roentgen treatment of metrorrhagic metrorrhagia during the menopause. M. C. BRIDGEMAN. *Strahlentherapie*, 1935, 11, 80.

The use of biopsy cuttings in the premenstrual and climacteric metrorrhagias. A. SCHWARTZ. *Zentralbl f Gynaek* 1935, p. 1048.

A revision of the theories concerning the sex hormones. H. NUTTEN. *Ugvek f Læger* 1935, p. 595.

The female sex hormones. H. G. WILLARD. *Northwest Med* 1935, 14, 435.

Female sex hormones. R. MORSE. *Gynec et obst* 1935, 38, 197.

An experimental study on the relationship of the pituitary and the genital hormones in women. CARTAGNA. *Arch d'obst gynec* 1935, 42, 609.

Studies of the follicular hormones and androgens in the urine of women, particularly in cases of tumors. L. SCHROEDER. 1934. Kiel, Dissertation.

Differential diagnosis in gynecology with the help of the intra-uterine injection of preparations from the posterior lobe of the hypophysis. G. GUTAI. *Spektr Arch Lektst* 1935, 27, 439.

Protein treatment and the theory of action of the sex hormones. V. VOOT. 1935. Garmen, Dissertation.

The treatment of hemorrhage in young women. SAMI. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 95.

The treatment of inflammatory hemorrhage. A. KAPICA. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 100.

The part played by the hormones in inflammatory bleeding. V. VALLER. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 102.

The treatment of inflammatory bleeding. TACKER. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 104.

Radiation treatment for benign hemorrhage. A. OBRIST. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 104.

Thrombogenic hemorrhages. T. SCHWARTZ. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 105.

The treatment of secondary amenorrhea with iron and copper. J. PRINCE. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 110.

Thrombosis and embolism in obstetrics and gynecology. K. BOCHNER. *Chir polska* 1935, 14, 371.

The more common pelvic neoplasms. G. H. GARDNER. *Northwest Med* 1935, 34, 417.

Gonorrhea in women: a consideration of its treatment. W. S. FLOW. *Med Clin North Am* 1935, p. 81.

Endometriosis, ovarian cysts, and intermenstrual blood flow. J. S. COCHRAN. *Surg Clin North Am* 1935, 15, 309.

Effective radical operations for genital carcinoma with low incidence of the recidive. STROGEM. *Zschr f Geburtsh u Gynaek.* 1935, 10, 353.

The use of dilators in gynecology. G. L. MORICE. *Am J Surg* 1935, 50, 510.

Surgical physiology of the pelvic sympathetic system in women. M. VASQUEZ. *Rev de chir Hop Javeret, Mex* 1935, p. 901.

Surgical anesthesias in obstetrical and gynecological surgery in tuberculous patients. F. R. PARRAZ and G. LOVATTO. *Bol Soc de obst. y gynec. de Buenos Aires*, 1935, 4, 513.

Surgical anesthesias for obstetrical and gynecological surgery in the cases of tuberculous patients. V. P. CHAZ, M. V. FALSA, and J. LEROY. *Bol Soc de obst. y gynec. de Buenos Aires*, 1935, 14, 511.

Gynecological techniques of Monoblasts. J. TERRY. *Gynecologica*, 1935, 34, 459.

Sterility causes and treatment. P. TITRE. *J. Am. M.* [248]

Ass. 1935, 705, 1737.

The results of treatment for sterility. Z. C. LOMB. *Zentralbl f Gynaek* 1935, p. 1795.

Medical and social aspects of birth control. S. J. KLEINMAN. *J. Lancet*, 1935, 55, 720.

OBSTETRICS

Pregnancy and Its Complications

Pregnancy and normal labor following hysterectomy. COLLE DE CARREIRA and BATTLE. *Bull Soc d'obst et de gynéc de Par* 1935, 24, 518.

The diagnosis of pregnancy from the hair. S. BARJAK. *Trinova*, E. BRAYANIKI, and K. POKROVIC. *Med Pregb* 1935, 1, 66.

The hormonal diagnosis of pregnancy. A. P. NIKOLAEV. *Zentralbl f Gynaek* 1935, p. 101.

The chemical diagnosis of pregnancy by the detection of esters in the urine. M. J. SCHOTTELOVITZ and H. B. WELLS. *J. Lab & Clin Med* 1935, 1, 1.

Triplet pregnancy. A. M. WELLS. *Gynec et obst* 1935, 38, 199. [248]

Mono amniotic twins, one normal, the other anencephalic, multiple true knots in the cords. S. LITT and H. A. BRADSHAW. *Am J Obst & Gynec* 1935, 30, 728.

Ectopic pregnancy. M. WINTER. *Colorado Med* 1935, 32, 564.

The diagnosis of ectopic pregnancy. R. MITTELL and E. MORGENTHAU. *Gynec et obst* 1935, 37, 321. [248]

Brouha reaction in extra-uterine pregnancy. GELF. *DENOIX, and PATON.* *Bull Soc d'obst et de gynéc de Par* 1935, 24, 500.

Extra uterine pregnancy. F. PARRY. *J. de méd de Bordeaux* 1935, 1, 3, 724.

Advanced extra uterine pregnancy. E. AUBERT. *Gynecologica*, 1935, 34, 45.

The treatment of hemorrhage in extra uterine pregnancy. L. BORNHAY. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 34.

Placenta previa. J. HOLLER. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 45.

Hemorrhage with placenta previa. J. LERIS. *Russk Chir a Gynaek. C. gynaek.* 1935, 14, 4.

- Premature separation of the placenta C GÁLA Rozhl Chir a Gynaek. Č gynaek., 1935, 14 155
- The determination of sex in man. O SCHOENER Wien. med. Wchnschr., 1935, 2 744
- Hemorrhage of the fetus due to prolapse of the umbilical cord J PRIBRSKÝ Rozhl Chir a Gynaek. Č gynaek., 1935, 14 150
- Fetal mortality and placenta previa E MACIAS DE TORRES Rev franç de gynéc et d'obst., 1935, 30 687
- The maximum gain in weight during normal pregnancy J L WOODON Bruxelles-méd., 1935, 15 1375
- Some effects of the upright position of human beings upon pregnancy, parturition, and the puerperium. A. ROGERS Ohio State M J., 1935, 31 847
- Disturbances experienced by pregnant women when in the dorsal position G AHLTORP Acta obst et gynec. Scand., 1935, 15 295 [246]
- The carbohydrate metabolism and pregnancy E DIEHL 1934 Frieberg: Br., Dissertation
- The glucose metabolism in pregnancy, acidosis and coma in the puerperal state J M BERNAT Bol Soc de obst. y gynec. de Buenos Aires, 1935, 14 490
- Proteolytic ferments of the leucocytes in pregnancy CELENTANO Arch di ostet. e gynec., 1935, 42 685
- Physiological changes occurring in the urinary tract during pregnancy J M HUNDLEY, H J WATSON, J T HIBBITTS, I A SIEGEL, and C B BRACK Am J Obst & Gynec., 1935, 30 625 [246]
- Studies in the etiology of premature rupture of the membranes A S COATZ Bol Soc. de obst. y gynec. de Buenos Aires, 1935, 14 529
- A case of spontaneous rupture of the uterus in the fifth month of pregnancy A W LANKOWITZ Zentralbl f Gynaek., 1935, p 1936
- Spontaneous rupture of the pregnant uterus in the sixth month A JAKOB and D COLLILAS Bol Soc de obst. y gynec. de Buenos Aires, 1935, 14 436
- The treatment of perforation of the uterus F SIEGERT Chirurg., 1935, 7 393
- Subcutaneous rupture of the liver during pregnancy H BECK Ginek polska, 1935, 14 300
- Hyperemesis gravidarum, hypochloremia, and uremia due to loss of chloride. A J M DOZYNSKI Nederl Tijdschr v Geneesk., 1935, p 3972
- Changes in the blood plasma protein in hyperemesis gravidarum S LACZKA Magyar Nőgyógy., 1935, 4 157
- The toxemias of pregnancy and certain deficiency diseases R A ROSS Virginia M Month., 1935, 62 424
- The toxemias of late pregnancy. W A THOMAS, E D ALLEN, C P BAUER and M R FREELAND Am J Obst. & Gynec., 1935, 30 665 [247]
- Observations on the treatment of the toxemias of pregnancy N K BANERJEE Calcutta M J., 1935, 30 269
- The clinical significance of metabolic studies and the pathogenesis of pre-eclampsia and eclampsia F P CRANTZ and J M BURUTSCHENKOWA Monatsschr f Geburtsh u Gynaek., 1935 100 57
- Intercurrent eclampsia G GOENAGA Semana méd., 1935, 42 1247
- The treatment of eclampsia with narcotics E LAUVET and K JONAS Schmerz., 1935, 8 37
- Further observations on the treatment of eclampsia. J A WOLKOW Monatsschr f Geburtsh u Gynaek., 1935, 99 200
- A case of insomnia in pregnancy A WONG Chinese M J., 1935, 49 1146
- Allergy and pregnancy B JEGOROW Zentralbl f Gynaek., 1935, p 1455
- Heart disease complicating pregnancy C A DEPUY California & West. Med., 1935, 43 355
- Some obstetrical aspects of cardiac disease complicated by pregnancy H B NELSON and M F EADES New England J Med., 1935, 213 1057
- The management of heart disease in pregnancy A A MARCHETTI Med. Clin. North Am., 1935, 19 893
- Acute appendicitis complicating pregnancy W H COOK and M J ROBIN Med Rec., New York, 1935, 142 444
- The upper urinary tract in pregnancy and the puerperium, with special reference to pyelitis of pregnancy. D BAIRD J Obst & Gynec Brit. Emp., 1935, 42 577 [247]
- The upper urinary tract in pregnancy, with special reference to pyelitis of pregnancy III. Changes in the upper urinary tract in pregnancy and the puerperium D BAIRD J Obst. & Gynec. Brit. Emp., 1935, 42 733 [249]
- The histology and pathogenesis of bilateral cortical necrosis of the kidney in pregnancy S DE NAVASQUEZ. J Path & Bacteriol., 1935, 41 385
- Pregnancies after nephrectomy for tuberculosis E LISSACK. J Missouri M Ass., 1935, 32 450
- Tumors and pregnancy D IRAETA. Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14 459
- Pregnancy and brain tumor A I SOSA y SÁNCHEZ and B S GUILHE Bol Soc de obst y gynec de Buenos Aires, 1935, 14 551
- Some cases of ovarian tumor during pregnancy, labor, and the puerperium O SALTZ Bratislav lek Listy, 1935, 15 450
- External adenomyosis during pregnancy, labor, and the puerperium J SZYMANOWICZ Polska Gaz lek., 1935, p 683
- Missed abortion complicated by peritonitis. B LECEWICZ Polska Gaz lek., 1935, p 624
- Clostridium welchii, report of an unusual case following abortion J B POMERANCE J Med Ass Georgia, 1935, 24 406
- Sequelae of curettage done with an incorrect diagnosis J C DE LA VEGA Rev méd d Rosario, 1935, 25 966
- Physical culture during pregnancy N BRIUKHATOV and K SCHEPETOVA Gynécologie, 1935, 34 537

Labor and Its Complications

- The mechanism of labor E RYDBERG Nord med Tidsskr., 1935, p 1105
- The significance of the shape of the fetal head in the mechanism of labor E RYDBERG J Obst & Gynec Brit. Emp., 1935, 42 795
- Twin births T GIZOWSKI Ginek polska 1935, 14 665
- Causes of uterine atony K KLAUS Rozhl Chir a Gynaek. Č gynaek., 1935, 14 160
- A clinical test of the newly recognized oxytocic principle of ergot and a new method of administration V L TUCK Am J Obst & Gynec., 1935 30 718
- Aseptic labor H DOERFLER. Med Welt, 1935, p 860
- Disturbances in labor and their treatment. K HOLZAPFEL. Fortschr d Therap., 1935, 11 401
- Thrombopenia and labor J GRUSS Rozhl Chir a Gynaek. Č gynaek., 1935, 14 141
- The prevention of birth injuries C R HANNAH South M J., 1935, 28 1021
- Causes of stillbirth and neonatal death C C FENTON West Virginia M J., 1935, 31 513
- Rupture of the uterus V MIKOLAS Rozhl Chir a Gynaek. Č gynaek. 1935, 14 154
- Hemorrhages during labor M BOGDANOVICH Rozhl Chir a Gynaek. Č gynaek. 1935, 14 138 [250]
- The treatment of hemorrhage in the third stage of labor K. VEYERKA Rozhl. Chir a Gynaek. Č. gynaek., 1935, 14 161

- Premature separation of the placenta. M HENKUSA. *Rochl. Chir. a Gynaek. C. gynæk.* 1935, 14, 59.
 An external procedure for determining presentation during labor. B N KOCHEV. *Rev. franç. de gynæk. et d'obst.* 1935, 30, 697.
 Spontaneous evolution of a transverse presentation. W G FRANK. *Am. J. Obst. & Gynec.* 1935, 30, 731.
 Contractions above the external os during labor. RENE GYNÉCOLOGE. 1935, 34, 473.
 Large uterine tumors as the cause for dystocia. M BRUNY. *Zentralbl. f. Gynaek.* 1935, p. 650.
 Important obstetrical groups and their correct nomenclature. F ESTERHART. *Zentralbl. f. Gynaek.* 1935, p. 1546.
 Cesarean section or high forceps? B KOSLAROWICZ. *Polska Gaz. lek.* 1935, p. 613.
 Critical studies of cesarean section. F VIGNER. *Rev. de chir. Hosp. Juarez, Mex.* 1935, p. 577.
 Systematic temporary or permanent excision of the peritoneal cavity from the operative region in cesarean section. F SERRANO. *Boletín de obst. y ginec.* 1935, p. 143.
 Cesarean section for placenta previa. J JUAN. *Rochl. Chir. a Gynaek. C. gynæk.* 1935, 14, 145.
 Dystocia due to hydrocephalus cesarean section. A MONTANAGRA. *Rev. de chir. Hosp. Juarez, Mex.* 1935, p. 539.
 Cesarean section for severe toxemia during pregnancy. J COLL DE CARRERA. *Boletín de obst. y ginec.* 1935, 44, 334.
 Prolapse of a uterine myoma. Abdominal cesarean section. J LUNA. *Rochl. Chir. Gynaek. C. gynæk.* 1935, 14, 307.
 A survey of cesarean sections in Iowa for the years 1929, 1931 and 1933. E D PLATT. *J. Iowa State M. Soc.* 1935, 5, 585.
 Artificial delivery for the third time during the third pregnancy. R PALLIX. *Boletín de obst. y ginec.* 1935, 44, 505.
 Manual separation of the placenta. R PETER. *Rochl. Chir. Gynaek. C. gynæk.* 1935, 4, 70.
 Failure of attempts at operative delivery in obstetrics in the basin. C HOUTERMANN. *Med. Welt.* 1935, p. 926.
 The relief of pain during labor. L C CORRY and J R VANT. *Canadian M. Ass. J.* 1935, 33, 474.
 Peribubital sodium as an obstetrical analgesic. J D PARKER. *J. South Carolina M. Ass.* 1935, 3.
 An analysis of 5 consecutive fetal and neonatal deaths during an eight year period at the Southern Baptist Hospital of New Orleans. T B SELLERS and J T SIMMONS. *South M. J.* 1935, 28, 107.
 Unrecognized intestinal perforation during the peripartum. HARTENACH and LACOUR. *Bull. Soc. d'obst. et de gynék. de Par.* 1935, 34, 343.
 Sutures for complete rupture of the perineum. B KOS. *Wien. med. Wochenschr.* 1935, p. 309.
 Fetal embolism two hours after delivery. VIGNER. *HARTENACH, LACOUR, and LACOUR.* *Bull. Soc. d'obst. et de gynék. de Par.* 1935, 34, 54.
 The value of ocular prophylaxis during the peripartum. B ROUSE. *Zentralbl. f. Gynaek.* 1935, p. 1305.
 Puerperal fever and its treatment. R SERRANO. *Med. Welt.* 1935, p. 1387.
 Puerperal sepsis. H PETER. *Zentralbl. f. Gynaek.* 1935, p. 1374.
 Anti-infection in obstetrics. H Nover. results in the bacteriological study of the uterus and vagina during the puerperium. A A SCHROEDER, O D DEMME, and J G. WOODRUFF. *Arch. f. Gynaek.* 1935, 199, 133.
 A case of postpartal death. JACQUES CHAVAT-PRIMO. *Arch. de med. chir. y especial.* 1935, 16, 669.
 Newborn
 The fate of premature infants following birth. J KOVACS and E DUBOY. *Obstet. Gynec.* 1935, 30, 571.
 The xerous index in the newborn infant. B E BOWEN. *Am. J. Dis. Child.* 1935, 50, 141.
 Vars of the umbilical cord. H DWOREZ. *Zentralbl. f. Gynaek.* 1935, p. 1340.
 Surgical diseases of the newborn. principles involved. J F BOUTON. *J. Oklahoma State M. Ass.* 1935, 26, 201.
 Miscellaneous
 Obstetrical practice of the future. M H PILLER. *Lancet.* 1935, 290, 17.
 Obstetrics in the general hospital. OBERG. *Deutsche Aerztebl.* 1935, p. 413.
 Hydrocephalus in the newborn. *Chromosomopathologie.* R ERZ. *Mitt. Med. T. physik. Gesellsch.* 1935, p. 401.
 Chromosomopathologie following full term pregnancy. C B LILL. *Am. J. Obst. & Gynec.* 1935, 30, 170.
 Histological study of the blood serum in a case with advanced chromosomopathology. L BARY, L. HIRSHMAN, M. HIRSHMAN, and R. FOST. *Bull. et soc. Soc. nat. de chir.* 1935, 61, 1069.
 A case of malignant chromosomopathology and its biological diagnosis. MIGNON, LANTIER, HIRSHMAN, and HIRSHMAN. *Bull. et soc. Soc. nat. de chir.* 1935, 61, 1065.
 Maternal mortality and the practice of obstetrics in Michigan. J C LITTON. *J. Michigan State M. Soc.* 1935, 34, 650.
 Maternal mortality and morbidity. J R FRANK. *J. Am. M. Ass.* 1935, 105, 148.
 Changes in maternal mortality and their significance. C E STEWART. *New England J. Med.* 1935, 212, 705.

Puerperium and Its Complications

- The puerperal psychosis. B GUYER. *Med. Clin. North Am.* 1935, 9, 977.
 Certain acute grave accidents in the immediate post-partum period. C GUYER. *Rev. franç. de gynék. et d'obst.* 1935, 30, 693.

GENITO-URINARY SURGERY

Adrenal, Kidney and Ureter

- Sexual changes in suprarenal insufficiency. G MARA. *Arg. de med.* 1934, 9, 595.
 The present status of the diagnosis and treatment of Addison's disease. A M SWELL. *Med. Clin. North Am.* 1935, 9, 345.

- Addison's disease treated by adrenal grafting. H BAILY and K D KERR. *Proc. Roy. Soc. Med. Lond.* 1935, 29, 4.
 Adrenal cortex extract. E C KERRALL. *J. Am. M. Ass.* 1935, 105, 1485.
 The adrenal hypercortical hypermediary syndrome. A A WICKNER. *J. Missouri State M. Ass.* 1935, 31, 434.

- Physiology of the upper urinary tract W P HIRST
Am J Surg, 1935, 30 347
- Descending urography and renal ureteral surgery F
CASTAÑO Bol y trab Soc de ciruj de Buenos Aires, 1935,
10 867
- Descending urography and renal ureteral surgery J
SALLERAS Bol y trab Soc de ciruj de Buenos Aires
1935, 10 993
- Renal dystopia, report of a case H A R KREITZ
MAY West J Surg, Obst & Gynec., 1935, 43 605
- Four cases of crossed renal dystopia GUTMANN and
FATUNOVA J d'urol méd et chir, 1935, 40 33
- The diagnosis and treatment of arterial anomalies of the
kidney C ARNAU Med rev mex 1935, 10 510
- Traumatic injuries of the kidney H Y LI and Z. M
KW Chinese M J, 1935, 40 1116
- Ruptured kidney M S S IARLAN Med J Australia,
1935, 2 601
- Renal injuries in traumatic shock E HILFELDT and T
HYRING Hosp-Tid, 1935, p 781
- Pyelography in renal pelvis J SALLERAS Bol y trab
Soc de ciruj de Buenos Aires 1935, 10 811
- The modern theory of renal function and its clinical
value R GIRDSTAM Nord med Tidskr, 1935, 1 55
- The choice and interpretation of tests of renal efficiency
R H FREYBERG J Am M Ass 1935, 105 1575
- Kidney function in acute calculous obstruction of the
ureter L F WILCOX Am J Roentgenol, 1935, 34 509
- Hypertension and denervation of the kidney R UHRL
NOEF Zentralbl f Chir, 1935, p 2230
- Pyelorenal reflux R LFCOLL Rev med d Rosario,
1935, 25 846
- Pain syndrome in hydronephrosis J L LÓPEZ BALLE
TEROS Clin y lab, 1935, 10 292
- "Gigantic" hydronephrosis W O WILDT and L H
DOOLITTLE J Urol 1935, 34 556
- Nephrectomy for hydronephrosis A S COLVILLE
Surg Clin North Am 1935, 15 1509
- A case of post traumatic atrophy of the left kidney G
OLIVIERI Riforma med, 1935 51 1324
- Changes in the acid base equilibrium in renal disease
L C DELATTE Clin y lab, 1935, 20 243
- Pyelonephritis with hematuria R PRECO and G
BALDRELL J d'urol méd et chir 1935, 40 209
- Small tuberculous cavity in a kidney diagnosed by en
doscopic pyelography P B ZOFZOZA J d'urol méd et
chir, 1935 40 258
- The pathology and clinical picture of paranephritic sup
puration, with particular reference to its pyelographic diag
nosis H JACOFF Beitr z klin Chir, 1935, 162 93
- Perinephric abscess G D R CARP J Roy Army M
Corps, Lond, 1935 65 332
- The effects of obstruction of the urinary tract with par
ticular relation to the formation of stones J GRAY Brit
J Surg., 1935, 23 451 [254]
- Urinary calculi in Paget's disease A F GOLDSTEIN and
B S ABLSHOUSS Am J Surg 1935, 30 359
- Renal lithiasis without lithiasis, its development clinical
and roentgenological diagnosis V ZAROKELF Rozhl
Chir a Gynaek. Chir, 1935, 14 393
- The effect of experimental interference with the blood
supply of the kidneys, with particular reference to the for
mation of stones J GRAY Brit J Surg, 1935, 23 458
[254]
- A case of renal lithiasis with faceted stones. L M
SANTOS Actas Soc de ciruj de Madrid, 1935, 4 253
- Unilateral fused kidney with calculus, a case report.
H J LINDNER. South M J, 1935, 28 972
- A case of polycystic kidney L MORRA J d'urol méd
et chir, 1935, 40 350
- Pyelography in polycystic kidneys M R DRAVUS J
d'urol méd et chir, 1935, 40 201 [255]
- An infrequent renal tumor I TOROCELLA An de
ciruj, Havana, 1935, 3 15
- Operative treatment of renal tumors H NACELL 1935
Leipzig Dissertation
- Papillary carcinoma of the renal pelvis J F BRUNTON
Canadian M Ass J 1935, 33 515
- Carcinoma of the right kidney with metastases C
MACHIN and J G DUBOIS Canadian M Ass J, 1935,
33 511
- Injuries to the ureters K D LYNCH and R F THOMP
SON South M J, 1935, 28 965
- Congenital dilatation of the ureter C HILLIARD Brit
M J, 1935, 2 835
- Physiopathology of the ureter and the pathogenesis of
certain hydronephroses, acute dilatation of the ureter H
BLANC J d'urol méd et chir, 1935, 40 289
- A case of bilateral cystic dilatation of the lower extremi
ties of the ureters causing acute infectious diseases of the
kidneys WOLFFENSTEINER J d'urol méd et chir, 1935,
40 245
- Anuria in ureteral stasis K KOVACOVIC Čas lek
česl 1935, p 737
- Periureteritis due to kinking / R VON CZAYKOWSKI
Ztschr f urol Chir, 1935, 41 200
- Ureteral lithiasis U L S ARDI and C COMOTTO Semana
med, 1935, 42 930
- Transurethral ureteral anastomosis C C. HIGGINS J
Urol, 1935 34 349 [255]
- A case of ureterosigmoid anastomosis for vesicovaginal
fistula following labor, fatal pulmonary embolism J P
ORFILA Arch uruguayos de med, ciruj y especial, 1935,
7 261
- The choice of methods of diverting the urinary stream
above the level of the bladder H CABOT and R G
SCHIFFER Ann Surg, 1935, 102 849

Bladder, Urethra, and Penis

- The microcystometer I SIMONS J Urol, 1935, 34 49
- Ectopia of the bladder BANCZ Zentralbl f Chir,
1935, p 1551
- Biopsy of the bladder B ENFREN J d'urol méd et
chir 1935 40 242
- Foreign body in the male bladder J COOK Lancet
1935, 229 1232
- Paraffin foreign body in the bladder P KATZEN J
Am M Ass, 1935 105 1422
- Diverticulum of the bladder with septic retention A J
GHIBAUDI Semana méd, 1935, 42 1249
- Cure of exstrophy of the bladder by the method of
Marion Heitz Boyer in a young man twenty years old
NANDROT Bull et mém Soc nat de chir, 1935, 61 1103
- Spontaneous intraperitoneal rupture of the normal uri
nary bladder R W BARNES and A A STEELE J Am
M Ass, 1935, 105 1758
- An experimental study of bladder disturbances analogous
to those of tabes dorsalis J E DEES and O R LANG
WORTHY J Urol, 1935, 34 359
- Vesical neck disease C V ZERBINI and F F OLIVA
Semana méd 1935, 42 1153
- Uterocystitis cystica K HOLMGREN Svenska Läkär
tidsningen, 1935, p 1362
- Interesting observation of a vesical calculus. A ALFES
J d'urol méd et chir, 1935, 40 255
- A rare bladder lesion. A MANUILOFF J d'urol méd
et chir, 1935, 40 347
- Personal experiences with tumor of the bladder J D
BARNEY New England J Med 1935, 213 976

- Fibrosarcoma of the cavity of the bladder J PFAKKA and A ELIASS J d'urrol med et chir 1935, 40, 323
- A study of the changes in the tongue during resection D F RICHMOND J Urol 1935, 34, 437
- An anesthetic lubricant for the urethra R M MURRAY and R K RAYLOR J Urol 1935, 34, 304
- Prostatic resection following injection in the transurethral urethra E M BROWMAN J Urol 1935, 34, 301
- The treatment of urethral strictures in the Kiel University Surgical Clinic H BILTZ 1934 Kiel, Dissertation
- Dilatation of urethral structure by an incompressible bougie S OBERHOLZER Presse med Par 1935, 43, 1583
- Transurethral rupture of the urethra W K DILLON and A R STEVENS J Urol, 1935, 34, 373
- Epilepsy due to changes of the verumontanum A VALERIO J d'urrol med et chir 1935, 40, 358
- The results of treatment in 1,000 cases of gonococcal urethritis at the Hospital St Louis C MOYER J d'urrol med et chir 1935, 40, 313 [256]
- Primary carcinoma of the urethra A McNALLY J Urol 1935, 34, 344
- Foreign body around penis with case report P G FOX Virginia M Month 1935, 61, 464
- Reconstruction in a case of epispadias controlled by urethrography W DOMINIANI J d'urrol med et chir 1935, 40, 320
- Congenital elephantiasis of the penis and scrotum H G MOORE J Roy Army M Corps, Lond 1935, 61, 528

Genital Organs

- Uncontrollable hemorrhage from benign prostatic enlargement C H DEY SURVIVS J Urol 1935, 34, 47
- Recent developments in prostatic surgery T J D LANE Irish J M Sc 1935, 119, 630
- The treatment of prostatic obstruction, with special reference to endoscopic resection I R Jour Med J Australia, 1935, 623
- The present status of prostatic resection R V DAY J Urol 1935, 34, 428
- Endoscopic tumors of prostatic obstruction C W COLLINGS J Urol 1935, 34, 306
- Some observations following prostatic resection W R HODGKIN J Urol 1935, 34, 407
- Recurrence of urinary obstruction following transurethral prostatic resection G J THOMSON J Urol 1935, 34, 405 [257]
- Cystic epithelioma of the prostate of enormous size COHEN and LARSEN J d'urrol med et chir 1935, 40, 351
- Bacoma of the prostate M FARRER 1935 Jena, Dissertation
- Prostatotomy R GAY v. Verhaard d med Gesellsch 1934, p 5. Monat Mag f Laryngol. 1935, 95
- The epithelium of the seminal vesicle and the endocrine activity in the testis T MARTIN Rev Soc argent de med 1934, 9, 375
- Torsion of the spermatic cord W H KROGER J Urol 1935, 34, 470
- A study of cysts of the spermatic cord F DE VICTORIS-MERINO Polichin Roma, 1935, 4, see chir 373
- Division of the spermatic cord as an aid to operating on selected types of inguinal hernia C G BOWEN and M L HENRIKSSON Ann Surg 1935, 101, 863

- Epididymo-orchitis in industrial surgery J J CHAZ J Urol 1935, 34, 477
- The advantages of closed epididymotomy M S ROSEN J Urol 1935, 34, 480
- The effect of a unilateral testicle on the genital apparatus A LEMOUREUX Rev Soc argent de med 1934, 9, 37
- The undescended testis O H WARMUTH Ann Surg 1935, 101, 875
- Surgical or hormone therapy of cryptorchidism R SCHRAMM Schweiz med Wochenschr 1935, 1, 315
- Torsion of the appendix testis J S KARNONX New Eng Land J Med 1935, 2, 3009
- Abdomino-scrotal hydrocele R C T SALT J Urol 1935, 34, 447
- A new method for the relief of hydrocele G R LETA MORE J Urol, 1935, 34, 446
- Radiation treatment of tumors of the testis G G SMITH, R DANKER, and E R MINTZ J Urol, 1935, 34, 442
- Selective irradiation in the management of testicular tumors R B FINEK J Urol 1935, 34, 451
- A case of seminoma testis treated by deep X-ray therapy A B S OWEN Med J Australia, 1935, 620
- Immediate results of surgical therapy of multiple metastases of a malignant testicular tumor R MARTI Rev med d Rosario, 1935, 25, 940
- A consideration of testicular pseudotumors J D BERRY J Urol 1935, 34, 453

Miscellaneous

- Urological findings in general practice A van RENSSELAAR J Missouri State M Ass 1935, 32, 443
- Nephrography as the service of urology V OCHER Arch d med d reins et d organes gastro-intest, 1935, 9, 453 [258]
- The incidence of congenital abnormalities in the prostatic duct J B BARTLEY and J B BAKER Lancet, 1935, 230, 160
- Urological injuries M F CAMPBELL Am J Surg 1935, 34, 347
- A case of chyluria L R FLORES Rev med de Chile, 1935, 3, 673
- Genito-urinary infections A L CHESOLA J Missouri State M Ass, 1935, 32, 444
- The methods of urolysis in urogenital tuberculosis B OR HODGKIN Zisch f Urol Chir 1934, 40, 31
- Spermatozoa cure, and the treatment of gonorrhea E DE LA PERA and A DE LA PERA Arch de med, chir y especial 1935, 10, 600
- Gonorrheal suppurative peritonitis in a child of 10 A VALERIO Arch brasil de med 1935, 5, 306
- Microbial polyuria in the treatment of arthritis and gonorrheal epididymitis V VITECT and ALLANCO J d'urrol med et chir 1935, 40, 334
- The characteristics of venereal granuloma in Uruguay M MALLAT Ann Fac de med de Montevideo, 1935, 29, 31
- Experimental and clinical observations on urinary colic C C HENNESSY New England J Med 1935, 251, 1007
- The medical management of urinary infection C C HODGKIN Surg Clin North Am 1935, 5, 442
- A new surgical principle in urological operations A GEMER J d'urrol med et chir 1935, 40, 337

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc

Some features of a case of multiple exostoses Diaphyseal aclasis (Keith) N N MATHESON *Radiology*, 1935, 25 631

Generalized diseases of the skeleton H A F FAIRBANK. *Proc Roy Soc Med, Lond*, 1935, 28 1611 [260]

Studies in calcium and phosphorus metabolism in generalized diseases of bones D HUNTER. *Proc. Roy Soc. Med, Lond*, 1935, 28 1610 [260]

Adolescent osteopathy, diminution of bone calcium J DECOURT *Bull et mém Soc méd d hop de Par*, 1935, 51 1445

Osteogenic disease I G MORENO, R L MILLAN, and A. DUMM. *Semana méd*, 1935, 42 924

Abnormally brittle bones H FUSS. *Arch. f klin Chir*, 1935, 182 425

Unusual osteomyelitis shaft tuberculosis. J KULOWSKI *Am J Surg*, 1935, 30 380

Flora in the gall bladder in cases of osteomyelitis due to the Eberth-Gaffky bacillus M LANDESMAN *Bull internat. de l'Académie Polonaise de sc et d lettres*, 1935, p 449

Emergency diaphysectomy in acute osteomyelitis J M JORGE and E MEALLA *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 883

Paget's disease (osteitis deformans) R C MOERLIG and J M MURPHY *Endocrinology*, 1935, 19 515 [261]

Osteochondritis dissecans P KROEGER. *Roentgenprax*, 1935, 7 455

Osteochondritis dissecans of Koenig, its diagnosis and errors in diagnosis from the roentgen film E A. ZIMMER. *Schweiz. med Wchnschr*, 1935, 2 834.

Acute bone infections involving the joints G K SMITH. *Med J Australia*, 1935, 2 620

Mycotic infections of the bones and joints M MEYER. *Rev d'orthop*, 1935, 42 485 *Presse méd., Par*, 1935, 43 1693

Osteitis fibrosa localisata BORCHARD *Monatsschr f Unfallheilk*, 1935, 42 341

Diagnostic errors in bone tumors. V LIEBLEIN. *Med Klin.*, 1935, 2 1008

Bone metastases of malignant tumors H HELLNER. *Ergebn d Chir u Orthop*, 1935, 28 72

Several diseases in bone transplants. E LEXER. *Zentralbl. f Chir*, 1935, p 1987 [261]

Recent observations on gunshot wounds of the joints M BASTOS and L MAZO. *Actas Soc. de cirug de Madrid*, 1935, 4 157 [261]

An evaluation of injury and faulty mechanics in the development of hypertrophic arthritis H P DOUB and H C JONES. *Am J Roentgenol*, 1935, 34 315 [262]

Insufficiency states, muscular contractures, and arthritis deformans H CAMITZ. *Acta orthop scand*, 1935, 6 173

Mono arthritis and its orthopedic treatment. A. FARAS. *Schweiz. med. Wchnschr*, 1935, 1 596

Polyarticular tuberculous arthritis C H SLOCUMB and R. K. GORMLEY. *Surg Clin. North Am*, 1935, 15 1251

Cholesterol and tuberculous osteo-arthritis R. E. DONOVAN and A. O. ETCHESON. *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 947

Physiotherapy of the arthritic patient. H F WOLF. *Med. rev mex*, 1935, 16 477

A clinic on some diseases of the joints I Gonorrheal arthritis, results of fever therapy II Acute postoperative

arthritis, its identification III Acute postoperative gout, its prevention and treatment. IV The inactivation of chronic infectious arthritis and fibrositis by jaundice. P S HEVCH. *Med Clin North Am*, 1935, 19 551-573

Acetylcholine in the prevention of ankylosis produced by rest. M R FRANCHILLON. *Ztschr f orthop Chir*, 1935, 63 197

Results from sanocrysin therapy in non-surgical joint diseases Follow-up examinations K SECHER and E GUDIKSEN. *Acta med Scand*, 1935, 86 370

Primary tuberculosis of the muscles F KAZDA. *Arch f klin Chir*, 1935, 182 273

Traumatic hemangiomatic tumors of the skeletal muscle R. MAILER. *Brit J Surg*, 1935, 23 245 [262]

Two cases of hemangioma of the voluntary muscle, with a brief review of the literature E N MACDERMOTT. *Brit J Surg*, 1935, 23 252

Crushed ligament injuries F FELSENREICH. *Wien klin Wchnschr*, 1935, 2 1058

Acute suppurative gonococcal tenosynovitis W BIRNBAUM and C. L. CALLANDER. *J Am M Ass.*, 1935, 105 1025 [263]

Ankylosis and injuries in the region of the shoulder RESCHKE. *Zentralbl f Chir*, 1935, p 1713

The occurrence of osteochondritic foci in the head of the humerus KROH. *Zentralbl f Chir*, 1935, p 2217

The genesis of ossification of the capsule of the elbow H-J KATZENSTEIN. *Beitr z klin Chir*, 1935, 162 136

Painful osteoporosis and pseudo arthrosis of the radius, perineuro-arterial sympathectomy and bone graft. A AMORIM. *Rev Soc med e cirurg do Rio de Janeiro*, 1935, 49 425

Dupuytren's contracture W NIEDERLAND. *Zentralbl. f Chir*, 1935, p 2238

The traumatic etiology of Dupuytren's contracture. H. KOHLMEYER. *Zentralbl f Chir*, 1935, p 1928

Volkman's disease, ischemic contraction of the flexor muscles of the fingers Pathogenesis and treatment R MASSART. *Presse méd, Par*, 1935, 43 1693 *Rev d'orthop*, 1935, 42 385

Multiple osteochondropathy of the phalanges of the fingers S A REINBERG and W P GRAZIANSKY. *Am J Roentgenol*, 1935, 34 617

The functional prognosis in cases of severed finger tendons J O VON ZWEIFBERGK. *Svenska Läkartidningen*, 1935, p 1064 [264]

Late subcutaneous rupture of the tendon of the extensor pollicis longus muscle. B LIPSHUTZ. *Arch. Surg*, 1935, 31 816 [264]

Osteitis of the twelfth rib and large trochanteric abscess BASTIDE and BRUNEL. *Rev d'orthop*, 1935, 42 608

The intervertebral disk, embryology, anatomy, physiology, and pathology R J JOPLIN. *Surg, Gynec. & Obst.*, 1935, 61 501

The injured back of the working man J B G MUIR. *Chinese M J*, 1935, 49 1992

Back sprain and back pain in industry R TRIGG. *Texas State J M*, 1935, 31 454

Orthopedic aspects of low back pain W G STUCK. *Texas State J M*, 1935, 31 456

The simultaneous occurrence of scoliosis and tuberculous spondylitis E GOLD and H. STERNBERG. *Arch. f orthop Chir*, 1935, 35 292

Vertebral osteopathy in adolescence J LOUBEYRE and A BLONDEAU. *Bull et mém Soc. méd. d hop de Par*, 1935, 51 1442

Sympathectomy for pseudarthrosis D Jovčić and JS STOJANOVIĆ. *Verhandl d i Kong jugoslav chir Ges*, 1934, 4 601

The treatment and prognosis of fresh dislocations of the shoulder R BIEBL *Arch f orthop Chir*, 1935, 35 381 [266]

Open treatment of sternoclavicular dislocation L A WEBER *Rev de ortop y traumatol*, 1935, 5 60

Traction dressings for fractured clavicle and metacarpus V CARABBA. *Am J Surg*, 1935, 30 323

A new type of aeroplane splint for the upper extremity O R MAROTOLI, J L BADO, and D VÁZQUEZ *Rev de ortop y traumatol*, 1935, 5 76

The treatment of supracondylar fracture of the humerus in adults P DEUTECHE *Deutsche Ztschr f Chir*, 1935, 245 302

Fracture of the lower extremity of the humerus in a child of seven years of age accompanied by complete paralysis of the median, ulnar, and radial nerves and obliteration of the radial artery. Operation twenty five days after the accident, late results NANDROT *Bull et mém. Soc nat de chir*, 1935, 61 1105

Rigidity of the elbow following fracture of the lower end of the humerus L OLIVARES *Actas Soc de cirug de Madrid*, 1935, 4 180

Traumatic epiphyseal separation at the elbow in children. K HORSCH *Zentralbl. f Chir*, 1935, p 1877

Supra-epiphyseal fracture of the forearm with marked displacement in the infant. P BERTRAND and J JUDET *Rev d orthop*, 1935, 42 602

Two cases of fracture of the forearm treated by osteosynthesis IACOBOWICZ and GRIGORESCO *Rev de chir*, Bucharest, 1935, 38 62

Comminuted Colles' fractures in elderly patients. Methods of treatment and end-results in thirty cases G E HAGGART *J Am. M Ass.*, 1935, 105 1753

The treatment of pseudarthrosis of the navicular bone of the wrist. H POLANO *Chirurg*, 1935, 7 245

Bilateral fracture of the first rib M C OLDFIELD *Brit M J*, 1935, 2 830

Fractures and dislocations of the vertebrae III Local anesthesia for reduction L BOEHLER *Chirurg*, 1935, 7 562

Fractures of the transverse processes of the vertebrae. Medicolegal studies H LUDWIG *Monatsschr f Unfallheill.*, 1935, 42 449

Fracture of the transverse processes of the lumbar vertebrae T NASTA, V VLĂDESCU, and M POPESCU-URLUENI *Rev de chir*, Bucharest, 1935, 38 13

Fractures of the lumbar vertebrae R T PETTIT *Illinois M J*, 1935, 68 318

Vertebral fracture with paralysis E HAUSER *Illinois M J*, 1935, 68 320

The treatment of fractures of the bodies of the vertebrae by hyperextension J M JORGE and A B AYROLLO *Bol y trab Soc de cirug de Buenos Aires*, 1935, 19 812

The treatment of fractures of the vertebral bodies by hyperextension JORGE *Bol. y trab Soc de cirug de Buenos Aires*, 1935, 19 963

The David Boehler treatment of vertebral fractures M PETROV *Ber bulg chir Ges*, 1935, 1 175

Fractures and dislocations of the pelvis S DAVIDOVIĆ. *Verhandl d i Kong jugoslav chir Ges*, 1934, 4 611

The pathogenesis of congenital dislocation of the hip B VIANNA *Folha med*, 1935, 16 453 *Rev de ortop y traumatol*, 1935, 5 3

Slipping of the capital epiphysis of the femur in adolescence C J SUTRO *Arch Surg*, 1935, 31 345 [267]

A new extension splint for transporting patients with fractures of the lower extremity, particularly fractures of the femur J DUBS *Schweiz med Wchnschr*, 1935, 2 635

The treatment of fractures of the thigh in children. D Jovčić and S STOJANOVIĆ. *Verhandl d i Kong jugoslav chir Ges*, 1934, 4 588

Tables for the roentgenological localization of fractures of the neck of the femur Å ÅKERLUND *Nord med Tidsskr*, 1935, p 1180

Fracture of the neck of the femur and pseudarthrosis, with particular reference to Pauwel's osteotomy H WIRTZ 1934 Muenster, W, Dissertation

Gangrene of the leg following fracture of the femur M FITTE *Bol y trab Soc de cirug de Buenos Aires*, 1935, 19 932

Gangrene of the leg following fracture of the femur LGAÑA, CAEIRO, and MAZZINI *Bol. y trab Soc de cirug de Buenos Aires*, 1935, 19 937

The treatment of fractures of the neck of the femur in adduction and coxa vara. Extra articular procedure of Sven Johansson J SOLER *Rev de cirug de Barcelona*, 1935, 5 213

Diphyseal fractures of the femur after open reduction J P LAMARE and M LARGET *Bull et mém Soc nat de chir*, 1935 61 1058

End results after internal fixation of transcervical fractures of the femur H H WESCOTT *Virginia M Month*, 1935 62 446

Further studies on dislocation of the patella O KAPEL *Acta chirurg Scand*, 1935 77 296

Congenital and recurrent dislocation of the patella treated by transplantation of the patellar tendon. F FORTY *Lancet*, 1935, 229 1046

External dislocation of the knee with fracture of the head of the tibia treated by immediate operation R M D'AUBIGNÉ *Bull et mém Soc nat de chir*, 1935, 61 1070

A needle for suturing patellar fractures MUELLER-MEERNACH *Zentralbl f Chir*, 1935, p 2001

Uncomplicated inferior marginal fractures of the tibia The uncomplicated anterolateral marginal fracture. E LUCCA *Ann. ital di chir*, 1935, 14 337

Can we improve the position of fragments in fractures of the head of the tibia by early motion? F W FUERMANN 1935 Leipzig, Dissertation

Fractures of the external condyle of the tibia treated by open reduction and a bone graft fixed with metal screws Late result P ROQUES *Bull et mém. Soc. nat. de chir*, 1935, 61 1146

The operative treatment of fractures of the malleoli. I MIHAR *Verhandl d i Kong jugoslav chir Ges*, 1934, 4 572

Fracture dislocation of the ankle treated without splints J C STOREY *Med J Australia*, 1935, 2 662

Fracture of the os calcis F PATIRE and M BOPPE *J de chir*, 1935, 46 491

Orthopedics in General

The development of orthopedic surgery C M PAGE *Proc Roy Soc. Med*, Lond, 1935, 29 63

What must the general practitioner know about the orthopedic treatment of injuries? O MAYR. Muenchen med Wchnschr, 1935, 2 1321

- "Bleeding" and "clotting" diets I N KUGELMASS
Med Clin North Am., 1935, 19 989
- Intravenous drop infusion and its temperature E ELDBLOM. Nord. med. Tidskr., 1935, p 1379
- The hypertonic wet dressing, an experimental study F W TAYLOR. Surg., Gynec. & Obst., 1935, 61 623
- Thirty years' experience with mastisol W VON OETTINGEN. Med Welt, 1935, p 795
- Deforming scars J P WEBSTER. Pennsylvania M J., 1935, 38 929 [271]
- Indications for the Reverdin grafts. Primary closure of skin defects and secondary closure following removal of scar contractures and in the treatment of varicose ulcer W EHALT. Zentralbl. f. Chir., 1935, p 1777
- Progressive postoperative gangrene of the skin H H SCHLINK and E F THOMSON. Med J. Australia, 1935, 2 625
- Postoperative pulmonary complications M C GANUGLI. Calcutta M J., 1935, 30 257
- The increasing frequency of embolus and its pathogenesis T FAHR. Tung-Chi, 1935, 10 299
- The frequency of postoperative pulmonary embolus in the Munich University Gynecological Clinic. K WIMMER. 1935. Munich, Dissertation.

Antiseptic Surgery, Treatment of Wounds and Infections

- Automobile accidents C H FILES. J. Iowa State M. Soc., 1935, 25 606
- Industrial accidents H A SPILMAN. J. Iowa State M. Soc., 1935, 25 608
- Farm accidents R D BERNARD. J. Iowa State M. Soc., 1935, 25 601
- War surgery in retrospect and prospect. POSNER. Chirurg, 1935, 7 494, 522, 569
- The migration of bullets L SUSSE. Zentralbl. f. Chir., 1935, p 2424
- The primary care of injuries of the face in the region of the mouth and jaws A LINDEMANN and H. HOFERATH. Deutsche Zahnärztl. Wchnschr., 1935, p 932 [271]
- The treatment of accidental injuries and its scientific and clinical bases E VON REDWITZ. Med Welt, 1935, pp 555, 640 [272]
- The use of ointments in the treatment of painful and inflammatory processes K BLUMÉ. Zentralbl. f. Chir., 1935, p 2208
- Extensive burns and scalds W C WILSON. Edinburgh M. J., 1935, 42 177
- A contribution to the treatment of burns A C TURNER. Brit. M. J., 1935, 2 995
- Bettman tannic-acid silver-nitrate treatment for burns O TRINDADE. Folha med., 1935, 16 474
- Ferric chloride coagulation in the treatment of burns, with a résumé of tannic-acid treatment G L COAN. Surg., Gynec. & Obst., 1935, 61 687
- A critical discussion of methods of treating furuncles from a theoretical point of view G MEYER. Beitr. z. klin. Chir., 1935, 162 163 [273]
- The biological treatment of furuncle and carbuncle D H NEGRETTE and E F BALESTRA. Semana méd., 1935, 42 1111
- A note on the treatment of boils and carbuncles P K FRASER. Brit. M. J., 1935, 2 894.
- Cases of furuncle of the face observed during the last eight years in the Jena University Surgical Clinic, and the results of treatment. J HEINZ. 1935. Jena, Dissertation.
- The sedimentation test in cutaneous carbuncle, with particular reference to its prognostic value R. CONSIGLIERE. Semana méd., 1935, 42 989

- The treatment of septic diseases by artificial abscess H VON BLOMBERG and S VON FORSTER. Muenchen med. Wchnschr., 1935, 1 783 [273]
- Increase of polypeptides in the blood in tetanus H WAREMBOURG and J DRIESSENS. Presse méd., Par., 1935, 43 1601
- The prophylaxis of tetanus G KAPITANOFF. Zentralbl. f. Chir., 1935, p 2409
- Tetanus and its treatment M GAGE and M DEBAKEY. Am. J. Surg., 1935, 30 157 [274]
- A study of forty cases of tetanus at the surgical clinic of the University at Giessen, with a contribution to the subject of the changes in the spinal column following tetanus, and a statistical study of the deaths from tetanus in the Province of Oberhessen in the period from 1923 to 1932 F M CLARENZ. 1935. Giessen, Dissertation [275]
- The incidence of erysipelas J RIDDELL. Brit. M. J., 1935, 2 946
- The use of serum in the treatment of erysipelas O S PHILPOTT. Color. do Med., 1935, 32 883
- Actinomycosis and trauma M PÖLLMANN. 1935. Muenchen, Dissertation.
- Gas gangrene and gas infections R K GHORMLEY. J. Bone & Joint Surg., 1935, 17 907 [275]
- The specific treatment of various streptococcal infections with human convalescent serum H L BAUM. Colorado Med., 1935, 32 876
- A case of wound diphtheria W EISNER. Schweiz. med. Wchnschr., 1935, 2 765

Anesthesia

- The usefulness of anesthetic agents J S LUNDY. Canadian M. Ass. J., 1935, 33 490
- Methods of producing anesthesia for operations on the neck. R. M. TOVELL. Surg. Clin. North Am., 1935, 15 1277 [276]
- Epileptiform seizures during anesthesia P LINDE. Nord. med. Tidskr., 1935, p 1376
- Contra-indications to irreversible anesthetics E DOMANT. Zentralbl. f. Chir., 1935, p 2118
- Cyclopropane anesthesia, a report based on 250 cases S ROWBOTHAM. Lancet, 1935, 229 1110 [278]
- The depth of anesthesia with avertin in animals under pathological conditions and following various therapeutic procedures W SCHMIEDER. 1935. Leipzig, Dissertation
- Experiences with long anesthetics with evipan H GEIGER. Zentralbl. f. Chir., 1935, p 2243
- Mechanical artificial respiration. H W DAVIES. Med. J. Australia, 1935, 2 623
- A new method of artificial respiration A B RAIS. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1935, 44 10
- Nitrous-oxide anesthesia in genito-urinary surgery. A. VON DER BECKE and J C DELORME. Semana méd., 1935, 42 996
- Characteristics of ether anesthesia JORGE, MORENO, HERNÁNDEZ, PASMAN, and CALCAGNO. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 19 865
- Experimental study of structural changes in the liver due to ether and ethyl chloride injected into the portal vein E DOTTI. Arch. ital. di chir., 1935, 40 741
- Rectidon twilight sleep as a method of inducing anesthesia A STALMANN. Zentralbl. f. Chir., 1935, p 2127
- Four hundred and fifty-six anesthetics induced with numal. P HUARD. Bull. et mém. Soc. nat. de chir., 1935, 61 1110
- Late injuries from anesthesia following the use of the halogen containing hydrocarbons in various doses and over various periods of time W LOGES. 1935. Leipzig, Dissertation.

- Intravenous anesthesia with cyclopa. E. VAN ACKER. *Rev belge d ac med* 1935 7 655
- High caudal block anesthesia. J S LEVY. *Surg Clin North Am* 1935, 15, 271
- Perforal anesthesia of Paget in gynecology. A REIZ. *Polichin. Rome*, 1935, 42, 2nd, 300
- Spinal anesthesia. J J SITTE and R M TOTELL. *Am J Surg*, 1935, 40, 15
- Spinal anesthesia induced with percan in 800 cases of gynecological and abdominal surgery. CHAS BOL SOC de obs y gynec de Buenos Aires, 1935, 14, 414
- Spinal anesthesia induced with percan in 800 cases of gynecological and abdominal surgery. E. NIKOLSON and G. HERRERA. *Bol Soc de obs y gynec de Buenos Aires*, 1935, 14, 452
- The effect of spinal anesthesia on glomerular function in cases of hypertension. H BRADLUND, G. MINTZ, T Q BYRON and A BLUMBERG. *Acta med scand* 1935, 80, 292
- Spiral anesthesia in Kirschner's Clasp. FAIRBANK. *Bueno Arch de med clieg y especial*, 1935 10 4
- Spinal anesthesia complicated by the breaking of the spinal puncture needle. L. R. A. HARRIS. *J Lancet*, 1935, 734
- On the combination of local anesthesia and general ether anesthesia. N. GILLENWALD and A. PALMIST. *Acta chirurg Scand* 433, 77-183
- Surgical Instruments and Apparatus**
- New forceps for grasping and pinning anastomosis. M T WHEEL. *Am J Surg*, 1935, 30, 347
- Splints for the hand and fingers adapted to practice. M. ZER VERTZ. *Zentralbl f Chir* 1935, 11, 1700
- Spiral cord clamp. R. J. GRAYSON. *Am J Surg*, 1935, 30, 352
- Instruments to facilitate anastomosis in pyloric stenosis. M. THORPE. *Am J Surg*, 1935, 30, 354

PHYSICO-CHEMICAL METHODS IN SURGERY

Röntgenology

- A new roentgenographic table. R. A. KENNEDY. *Am J Roentgenol* 1935, 34, 70
- The measurement in roentgens of the distribution in water of the intensity of radiation from 1-gram and 4-gram radium salts. L. G. GRANT and J. READ. *Brit J Radiol* 1935, 8, 702
- Methods of enhancing roentgen ray action. A. J. DYLANO. *Radiology* 1935, 25, 67
- A modified technique for the stereoscopic examination of the skull by X-ray. Z. W. COHEN. *New England J Med* 1935, 1, 107
- Causes of error in roentgenography of the skull. L. CLAUDET. *Presse med* Par 1935, 43, 54
- A localizer for the roentgenographic examination of the temporal bone in Sten's position. J. D. CARY and C. GIANNETTO. *Am J Roentgenol* 1935, 34, 700
- Factors influencing quantitative measurement of roentgen ray absorption of tooth slabs. III. Mechanical factors of tube and machine. II. C. HORN, G. VAN HILVER, and A. L. W. *Am J Roentgenol* 1935, 34, 674
- Sialography with particular reference to neoplastic diseases. II. T. KIRK, W. SERRA and J. J. WOLFE. *Am J Roentgenol* 1935, 34, 684 [279]
- Paranasal mucous shadows. C. FORTSON. *Radiol med* 1935, 1, 107
- A critical discussion of the roentgenographic anatomy and roentgenological splanchnology of the neck. C. PERCUM. *Radiol med* 1935, 1, 87 [279]
- Rib defects revealing pulmonary cavitation. C. JONES. *Radiology* 1935, 5, 555
- Discrete pulmonary lesions roentgenologically considered. J. M. FRIEDMAN. *Radiology* 1935, 1, 100
- Oblique films for the study of adhesions in artificial pneumothorax. R. T. ELLISON. *Am J Roentgenol* 1935, 34, 692
- Fluoro-cell carcinoma of the right breast roentgenologically metastases for giant-cell tumor. V. A. POWELL and W. D. MITCHELL. *Radiology* 1935, 5, 618
- Roentgen examination of the parathyroids. I. Form of the gland. G. D. MILLER and L. F. MILLER. *Radiology* 1935, 5, 605
- The effects of thoracic ducts and lymphatics on the human liver. L. G. RIGLER, R. ROBERT and A. L. ADAMS. *Radiology* 1935, 5, 5
- A further note on the speech production of the lead radiograph. A. E. BARTLEY. *Brit J Radiol* 1935, 8, 101
- A description of an X-ray couch designed for use in all service, fluorograph, new type of localizer device. II. J. YONKE. *Brit J Radiol* 1935, 8, 657
- Röntgen therapy for inflammation and malnutrition. L. T. LAMONT. *Med Clin North Am* 1935, 10, 597
- Irradiation of lymph adenopathies. L. GARO. *Rev med de Chile*, 1935, 63, 254
- The roentgen treatment of certain types of arthritis. L. H. GARDNER. *Radiology* 1935, 25, 44 [279]
- A classical concept of roentgen therapy of the joint tumors. P. FACALANI. *Rev Soc med e chir de Laib Janeiro*, 1935, 40, 449
- A further discussion of the saturation method of roentgen therapy in deep-seated malignant disease. G. J. FRANK. *Am J Roentgenol* 1935, 34, 696 [279]
- Further observations on the use of unfiltered roentgen rays for superficial cancers of the skin and deep involvement. H. F. WIDOM. *Am J Roentgenol* 1935, 34, 644
- Retardation of bone growth following roentgen therapy. A. use of an extensive necrosis of the skin in an infant (one month of age). R. H. STEVEN. *Radiology* 1935, 1, 535
- Radium emanation treatment of vesical cancer. J. P. PROCTOR and J. R. VANCE. *Am J Roentgenol* 1935, 34, 657
- The distribution of radiation in deep X-ray therapy. II. M. PARKER and J. H. MONTAGNE. *Brit J Radiol* 1935, 8, 654
- Röntgen therapy with 700 k. R. F. HERRICK. *Am J Roentgenol* 1935, 34, 659
- A preliminary report on a new treatment method. J. T. J. J. J. *Am J Roentgenol* 1935, 34, 659
- The problem of modern distribution of the roentgen field in superficial roentgen therapy. J. H. MONTAGNE. *Am J Roentgenol* 1935, 34, 654
- Radium**
- Experiment with radium. C. F. MOORE. *J Surg* 1935, 35, 74
- Fracture constructions in radium therapy. R. F. PARKER. *Surg Clin North Am* 1935, 11, 375

Leucocytic variations in rubber workers. D. R. GOCH.
 Illinois. Brit. J. Radiol., 1935, 8, 55.

Miscellaneous

Electrotherapy 1910-1935 including experiments in the
 induction of artificial fever. C. B. HAYES. Proc. Roy.
 Soc. Med., Lond., 1935, 3, 171.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Brittle bones with blue sclerotic in fifteen members of a
 family. H. G. METCALFE. Gen. & H. Sp. Rep. Lond., 1935,
 5, 369.

Progressive lipodystrophy. The Barraquer-Simon syn-
 drome. L. BARRAQUER. French. Proc. Acad. Par., 1935,
 43, 1672. [253]

A study of dehydration in humans. F. A. COLLIER and
 W. G. MARRAS. Arch. Surg., 1935, 10, 947. [253]

Loss of blood. I. Paris. J. de med. de Bordeaux, 1935,
 112, 775.

The effect of high intrapleural pressure on blood pres-
 sure. J. K. HILL. Arch. Int. Med., 1935, 52, 691.

The viable blood reaction following serum in surgical
 operations. M. TIRRETT. Arch. ital. di chir., 1935, 45, 700.

The value of a new hemostatic thrombolytic. I.
 RASTELLI. Polilin, Rome, 1935, 4, ser. prat., 215.

Delayed death from pulmonary embolism. J. M. W.
 SULLIVAN. Am. J. Surg., 1935, 50, 142.

Lymphedema of the extremities. Etiology, classification,
 and treatment. A report of 100 cases. I. A. ALPER and
 R. E. GILLESPIE. Ann. Int. Med., 1935, 9, 510. [253]

The medical treatment of surgical shock. C. H. FRATLEY.
 J. Am. M. Ass., 1935, 103, 1731.

Medical care of the surgical diabetic. K. L. HARRIS.
 Am. J. Surg., 1935, 50, 305.

A contribution on hypervitaminosis. A. J. A. COLLAZO
 and J. S. SCHNEIDER. Rorsch. Lett. Rev. Soc. argent. de biol.,
 1934, 10, 235.

The problem of hypervitaminosis of Vitamin A and the
 innocuousness of large doses of Provitamin A. J. L. THOMAS
 and L. RITT. Rev. Soc. argent. de biol., 1934, 10, 102.

A case of agranulocytosis angina (malignant neutropenia).
 I. S. DORRANCE. Canadian M. Ass. J., 1935, 33, 510.

The clinical significance of experimental studies in wound
 healing. E. I. HOWES and S. C. HARKER. Ann. Surg.,
 1935, 102, 941.

Inflammation and bacterial invasiveness. V. MISKIN.
 Am. J. M. Sc., 1935, 109, 531.

The toxin of the bacillus tetani is not transported to the
 central nervous system by any component of the peripheral
 nerve trunks. J. J. AMEL. Rev. Soc. argent. de biol., 1934,
 10, 107. [244]

The serological classification of hemolytic streptococci
 in relation to epidemiological problems. H. F. SWIFT,
 R. C. LANCEFIELD, and K. GOONER. Am. J. M. Sc., 1935,
 109, 445. [284]

The classification of hemolytic streptococci from the nose
 and throat of normal human beings by means of precipitin
 and biochemical tests. R. HAYES and W. R. MAXTED. J.
 Path. & Bacteriol., 1935, 41, 513.

The importance of the antitoxin of Besredka in surgery.
 S. A. KLER. Beitr. z. klin. Chir., 1935, 162, 15. [285]

Calanosis universalis. E. G. RAMSDALL. West. J. Surg.,
 Obst. & Gynec., 1935, 43, 624. [285]

The present status of short-wave therapy. A. L. A.
 Wien. klin. Wochenschr., 1935, 1, 722.

The therapeutic use of short wave currents. W. BIR-
 MAN and M. SCHWARZCHILD. New England J. Med.,
 1935, 212, 501. [281]

The effect of the high frequency field on experimental
 rat tumors with special reference to the so called "specific
 effect." H. J. LAYTON. Brit. J. Radiol., 1935, 8, 715.

The sarcoid of Boeck, a disease of importance to internal
 medicine. H. A. SARRIS. Acta med. Scand., 1935, 80,
 1-7. [285]

Sarcocystis, cysts and tumors. R. W. KAY. Brit.
 J. Surg., 1935, 23, 117. [285]

Pilonidal sinus, surgical treatment and pathological
 structure. H. ROBERTS and M. G. HUNT. Arch. Surg., 1935,
 11, 74. [246]

Tumor of Scarpus triangle. G. B. APANA and M. I.
 P. S. Sen. Ann. med., 1935, 42, 1197.

Chondroma: a study of 150 cases. R. F. MANDRY. Am.
 J. Cancer, 1935, 5, 501. [286]

Epididymoma of the arm simulating endothelioma, sar-
 coma, and synovitis. Two unusual cases. H. M. T.
 COURRY. Med. Clin. North Am., 1935, 19, 607.

Malignant melanoma in colored races: the role of trauma
 in its causation. F. I. HERRICK. J. Path. & Bacteriol., 1935,
 41, 471.

Allergy to extracts of malignant neoplasms, relative
 desensitization and its practical prophylactic importance.
 S. CITELLI. Polilin, Rome, 1935, 42, ser. prat., 2011.

Concerning the proper use of the standard deviation of
 the mean tumor diameter. I. BISHOP. Am. J. Cancer,
 1935, 25, 6-8.

A factor in malignant typhus which increases the per-
 meability of the dermis. I. BOYLAND and D. McCLELLAN.
 J. Path. & Bacteriol., 1935, 41, 551.

The breeding behavior and tumor incidence of a black
 Aboult stock of mice. J. J. BIRRELL. Am. J. Cancer, 1935,
 25, 614.

The effect of prolonged cyanide treatment on body and
 tumor growth in rats. I. H. PERRY. Am. J. Cancer, 1935,
 25, 597.

Mesoblastic tumors produced in fowls by exposure to
 radium. J. C. MOTTEAU. Proc. Roy. Soc. Med., Lond.,
 1935, 20, 15.

The cancer problem. W. A. O'BRIEN. J. Lancet, 1935,
 53, 695.

The problem of cancer and practical surgery. I. KORNIG.
 1935. Stuttgart, J. F. Kne.

The local process of cancer formation. I. BANC and G.
 GUONINO. Nord. med. Tidskr., 1935, p. 1110.

Induction of cancer by cracked mineral oils. C. C.
 TWORT and J. M. TWORT. Lancet, 1935, 229, 1220.

The effect of oil of allicium on the incidence of spontane-
 ous carcinoma in mice. L. C. STROUD. Am. J. Cancer,
 1935, 25, 607. [286]

Cutaneous cancer in cotton mule spinners. F. D.
 IRVINE. Brit. M. J., 1935, 2, 996.

Serum phosphatase estimations in cancer cases. I.
 HARVEY. Irish J. M. Sc., 1935, 119, 662.

Team work in head cancer. F. C. GALLOWAY. Illinois
 M. J., 1935, 68, 331.

The present trend of radiation in the treatment of cancer.
 M. CUTLER. J. Lancet, 1935, 55, 709.

A cancer survey of Michigan. I. L. RECTOR. J. Michi-
 gan State M. Soc., 1935, 34, 666.

A case of congenital sarcoma. E KURANT. *Zentralbl f Chir* 1935, p. 230 [284]

Sarcoma of the soft parts observed at the Colla P Huntington Memorial Hospital, Boston, from 1924 to 1929. C C SHIMONE. *Am J Cancer* 1935, 25: 64

A quantitative investigation upon the occurrence of Vitamin G in Rat Sarcoma. J L B BRASCH. *Am J Cancer* 1935, 25: 55 [287]

The transplantation of heteroplastic malignant growths II Histogenesis of the transplantable Jensen sarcoma of a rat. B PIERCE. *Bull Internat de l'Academie Polonaise de med et d letters*, 1935, p. 167

General Bacterial, Protozoan, and Fungal Infections

Pneumococcus septicaemia. A W DUKAS. *J Nat M* 1935, 27: 60

Subacute streptococcus viridans septicaemia. W F RICHARDS JR and L. HARRIS. *Ann Surg* 1935, 102: 905

Staphylococcal septicaemia cured by serum and staphylococcal anatoxin. J CAROLI and A BOWEN. *Bull et ann. Soc med et hop de Par* 1935, 51: 1396

Recovery from septicaemia after the intravenous administration of olive-oil emulsion. J A LAWSON. *Med J Australia*, 1935, 2: 661

Ductless Glands

Integration of the endocrine system. W LAMSON. *Bravoy. Lancet*, 1935, 229: 1555

The treatment of primary disorders. A S BURNHAM. *Med Clin North Am.*, 1935, 19: 817

Experimental studies of the functional connection between the thyroid and liver. E REICHERT. *Arch exp et clin* 1935, 40: 545 [287]

The blood magnesium in parathyroid disease and its relationship to calcium and phosphorus. O MEILI and A KARADENKOVA. *Polcsin, Russc*, 1935, 4: 100 med 626

Partial deficiency of the parathyroid glands. M J KOTLOW. *Med Rec New York*, 1935, 142: 43

Hyperparathyroidism, a real and partially reversible disease. J HILLSTROM. *Nord med Tidskr* 1935, 39: 331 575 [287]

Surgical Pathology and Diagnosis

The influence of urinary bladder transplants on lysin cartilage. O H CORNER. *Ann Surg* 1935, 102: 977

The value of laboratory tests in the diagnosis of hydatid disease. L. SCHER and S. LARSEN. *Prog de la chir Madrid*, 1935, 25: 51

Himmatt's debt to animal experiment. W BOYCE. *Irish J M Sc* 1935, 9: 621

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INTERNATIONAL ABSTRACT OF SURGERY

APRIL, 1936

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

HEAD

Kornblum, K., and Hodes, P. J. The Roentgenological Aspects of Osteomyelitis of the Skull
Radiology, 1935, 25 566

Osteomyelitis of the skull has received scant attention in roentgenological literature. In a consideration of the etiology of osteomyelitis of the skull, four factors enter viz., paranasal sinus disease, mastoid disease, metastatic or hematogenous spread, and skull trauma. Extension from paranasal sinus infection is the most common etiological factor, although it is the least common complication of sinusitis. Infection of the frontal sinuses accounts for most of the cases of calvarial osteomyelitis. Mastoiditis is a less frequent cause than sinus infection, but is an important etiological factor. Osteomyelitis due to metastatic infection is less frequent than either sinusitis or mastoiditis. Trauma is a less common etiological factor of osteomyelitis of the skull than of osteomyelitis of the long bones. Osteomyelitis of the skull is more frequent in women than men and seems to be most common between the ages of fifteen and thirty years.

The most common organism found in calvarial osteomyelitis is the staphylococcus. The prognosis is better when the disease is due to this bacterium than when it is due to the streptococcus. While the mode of onset of the condition is debatable, inadequate drainage in sinus infection may well be a factor. The infection probably spreads by retrograde thrombosis in the diploe after having entered the small efferent vessels in the mucous membrane of the sinus. Because of the free anastomosis and multiplicity of the blood channels, the infection spreads freely to all parts of the calvarium. Fortunately, however, it usually extends toward the vertex. The early stage of hyperemia is soon followed by the formation of small milary droplets of pus which is followed within from a week to ten days by copious quantities of pus. In young persons the sutures tend to limit the spread of the infection. Osteomyelitis of otitic

origin may spread to the calvarium and not infrequently involves the petrous pyramid. Trauma may result in either a localized involvement or involvement of a spreading type.

The clinical manifestations of osteomyelitis of the skull are usually not so pronounced as those accompanying infection of long bones. One of the most common findings is a marked hypochromic anemia. The suppurative process may extend into the cranial cavity with the development of an extradural abscess, meningitis, or thrombosis. Perforation may occur through the outer table of the skull. The clinical and the roentgen diagnosis are frequently uncertain and difficult early in the disease.

Roentgenographically, osteomyelitis of the skull appears as a localized or a spreading type of infection. As the spreading type has a high mortality, differentiation between the two types is of great importance.

The very early changes of localized osteomyelitis associated with frontal sinusitis are usually not discernible. The first changes noted consist of a ragged sinus border and rarefaction extending for a variable distance into the surrounding bone. In most cases the disease is unilateral, comparison of the two sides being therefore possible. The reparative process is indicated by increased density of the bone which may be sufficiently extensive to obliterate the sinus. Localized osteitis or osteomyelitis of otitic origin is common. The osteosclerosis due to such involvement is seen frequently. The infection may spread to the petrous pyramid by means of a retrograde pylebitis or by way of the pneumatic cells. As either method of spread may lead to suppuration, recognition of such spread is very important. The authors find the anteroposterior projection of the mastoid helpful and use it routinely in addition to the base view. The presence of suppuration is shown by loss of bone detail. The area becomes less dense and more homogeneous in appearance than the opposite side. The roentgen manifestations of osteomyelitis of the skull, like those of osteomyelitis elsewhere, are

late in their appearance. The very early changes of the metastatic type are often difficult to distinguish from venous lakes. The condition may be of either the localized or the spreading type. For the detection of early lesions the possibility of osteomyelitis must be kept in mind. The findings in traumatic osteomyelitis are not unlike those resulting from sinus infection.

The spreading type of osteomyelitis presents an appearance distinctly different from that of the localized form. Spreading may occur by continuity or by way of the diploe. If the infection spreads by continuity the involved area is studded with minute foci of rarefaction which later enlarge and coalesce, producing the characteristic "moth-eaten" appearance. The seque-like zones of rarefaction will be seen in advance of the spreading lesion. Such a lesion will usually spread until it is surgically drained, and may involve the entire calvarium.

Spread of the infection by way of the diploe occurs more rapidly than the spread by continuity. The areas of rarefaction will be found along the diploe channels. The areas between the channels will present a normal appearance. Later the areas of rarefaction become large but tend to follow the diploe and the spread is usually toward the vertex. Serial roentgenograms are of great value in determining the course of the disease and as a guide to the surgeon.

The authors emphasize that it is of importance for the radiologist to keep the possibility of osteomyelitis in mind in all sinus, mastoid, and skull examinations. They suggest roentgen therapy as an adjunct to the modern treatment of osteomyelitis of the skull.

EARL E. BARTS, M.D.

Hjörhede, S.: A Contribution to the Study of Benign Tumors of the Parotid Gland and Their Radiological Treatment (Contribution à l'étude des tumeurs bénignes de la parotide et à leur traitement radiothérapique). *Acta chirurg. Scand.* 935 77 19.

In collaboration with Radinbommet, Stockholm, the author reports on thirty-seven clinically benign tumors of the parotid gland. He states that, with rare exceptions, treatment with the roentgen rays or radium cannot by itself cause these tumors to disappear. For cure, surgery is also necessary.

When the tumor is located more or less deeply in the parotid tissue extirpation is facilitated and lesions of the facial nerve can be avoided by first cutting the neoplastic mass and then removing the capsule according to the special procedure described.

Pre-operative teluridium treatment renders the capsule firmer and thereby facilitates the dissection.

At operation, extirpation of the capsule is essential.

After the operation it is advisable to introduce radium into the operative cavity and, at the same time, to resort to teluridium treatment or roentgen irradiation to prevent recurrence.

Recurrences arise either in remnants of the capsule which could not be removed and often contain

neoplastic nests or in nests located outside of the capsule. In the cases reviewed, postoperative recurrences of the benign tumors were themselves benign. Malignant degeneration of a benign tumor was not observed. The author maintains that extreme considerations should not be the only indications for operation. Surgery is advisable in all cases of parotid tumor.

The operation should be carried out at first with the assumption that the tumor is benign. If the microscope reveals malignancy either radical therapy should be given or further operation with partial or complete removal of the gland according to the indications should be done.

Wassmund: Granulation Tumors of the Jaw and Their Clinical Diagnosis (Ueber Granulationstumoren der Kiefer und ihre klinische Diagnose). *Zentralbl. f. Chir.* 1933, p. 1835.

Wassmund discusses eight cases of tumor of the jaw which he calls granulation tumor but which Aschauer described in 1930 as "pseudosarcoma." According to their manifestations, tumors of this type have heretofore been diagnosed and treated as sarcomas or inflammatory processes.

Histological examination of the structures showed young granulation tissue alternating with old scar, giving a great deal of variety to the microscopic picture. This picture allowed the differentiation from sarcoma. The differentiation from osteitis was often very difficult. However sequestrum formation and regenerative formation of new bone in lacking in these tumors, whereas they are almost always observed in osteitis.

With regard to the clinical picture, Wassmund says that in three of his eight cases the tumor was found at only one site whereas in the five others they were found at various sites in the alveolar (upper and lower jaw, auditory canal, tensor). For the most part, they were of a benign character showed no tendency to metastasize, and responded promptly to roentgen irradiation. In only one of the cases observed up to the present time (a case of granulation tumor of the upper jaw) was roentgen irradiation followed by rapid growth, necrosis, and final bleeding from a vessel of the pharyngeal wall.

In the discussion of this report Aschauer, Aschauer, and Pick confirmed Wassmund's observations to a great extent. Pick warned against too much optimism with regard to the prognosis of these cases, calling attention to the result in the case of granulation tumor of the upper jaw observed by Wassmund.

(MORIMON) FLOWERS ARTER CANNULA.

ETX

Tragquist, H. M. Glaucoma, with Special Reference to Medical Aspects and Early Diagnosis. *Brid M J* 1933, 933.

Primary glaucoma includes those types usually called acute, congestive, or inflammatory. It may

exist for many years without symptoms or field changes. The so-called prodromata are evidence that the disease has been present for a long time.

There are three stages in early glaucoma, the first without symptoms, the second without field changes but with symptoms and occasional periods of increased intra-ocular tension, and the third with early field changes. The diagnosis is not possible in the first stage, but should be made in the second.

The earliest field change is "barring of the blind spot." This is demonstrated by the use of a tangent screen at a distance of 2 meters with a test object 10 mm in diameter. Patients with glaucoma have fields which wholly exclude the blind spot when taken in this way although the peripheral field may extend out to from 25 to 30 degrees elsewhere.

The diagnosis of glaucoma should be based, not on any one finding, but on all findings. The author cites numerous illustrative cases and discusses also other diagnostic points. SAMUEL A. DURE, M.D.

Lambert, R. K. *Studies of the Retinal Circulation by Direct Microscopy* *Am J Ophthalm*, 1935, 18, 1003

Ordinary fundus photography has not been successful in demonstrating caliber changes in the retinal vessels. Such have been demonstrated by Lambert by means of a special technique utilizing photomicrography and measurement with a micrometer scale. After such photographs were taken *in vivo* the eyes were removed and sectioned along the course of the photographed vessels, thus making possible reconstruction of the vessels to the size during life. The thickness of the vessel walls was found to be about one-twentieth of the lumen, there being practically nothing but endothelium in the wall of the retinal vessels which receive support from the intra-ocular pressure.

The effect of intravenously injected drugs on the caliber of the vessels was studied with the same technique. In most cases there was vasodilatation concomitant with the rise in blood pressure following the use of adrenalin and vasoconstriction following the use of nitroglycerine and amyl nitrite. In the rabbit, vasoconstriction resulted from stimulation of the cervical sympathetic. In the cat and monkey no changes were noted.

These findings are of importance in that they show that the caliber of the retinal vessels is dependent largely upon the inflow of blood to the eye, and that any vasomotor control affects the retrobulbar vessels rather than the retinal vessels.

WILLIAM A. MANN, JR., M.D.

Mann, I. *Congenital Retinal Fold* *Brit J Ophthalm*, 1935, 19, 641

Six cases of congenital retinal fold are reported. The author believes that the condition is more common than the literature suggests and that in most cases it is confused with persistent hyaloid artery or pseudo-gloma. It is due to a defect in the structure and differentiation of the inner layer of the optic

cup. As the cleft region is not involved it cannot be grouped with the colobomas. All cases are characterized by the appearance of folds or ridges involving the inner layer of the optic cup and projecting forward into the vitreous. The folds may occur at any site, but are found most frequently on the temporal side.

Microscopic examination reveals clearly that there is a double layer of retinal tissue pulled inward and usually associated with a persistent hyaloid artery. Retinal vessels are found in the folds. The retinal structure is somewhat disturbed. The layers are imperfectly differentiated, and rosettes are often present. A persistent hyaloid artery may be associated with the apex of the fold or the artery may be surrounded by a glial sheath forming a thick tubular structure. It appears that the folds are due to adhesion of the primary vitreous and its contents to one portion of the inner layer of the optic cup, the secondary vitreous which should normally separate them being absent along the line of the adhesion. In the presence of such an adhesion the retina is thrown into a fold when displacement occurs. This theory agrees well with the clinical picture. The cause of the adhesion is obscure as there are no evidences of inflammation and in some cases the condition is bilateral and symmetrical.

WILLIAM A. MANN, JR., M.D.

Spaeth, E. B. *The Re-Attached Retina. Physiological, Ophthalmoscopic, and Microscopic Observations and Comparisons* *Arch Ophthalm*, 1935, 14, 715

From histological evidence it would seem that the degree of recovery following operation for retinal detachment would depend largely upon the presence of healthy rods and cones and the absence of certain irregular subretinal cells which probably are proliferated pigment epithelial cells. The microscopic picture of cholesterol crystals is a definite indication of degeneration which is so extensive that failure is certain.

The author studied peripheral and central fields for form and color before and after operation and describes his findings in several cases in detail. In the color investigations no regular defect conforming to any recognized type of color blindness was found. Disturbances for blue and green were present although these did not appear in ordinary tests for color blindness. There seems to be a strong possibility that the re-attached retina shows a marked pathological condition of the scotopic mechanism. There is a constant disturbance of the threshold of light sense. It is not rare to find vision of 6/9, fair visual fields, good color sense, and a minimal threshold for light less than one-twentieth of the normal. A description of the ophthalmoscopic postoperative picture emphasizes the typical appearance of the adhesive chorioretinitis with the background a faint yellow or pinkish color, probably due to the cicatrix, pigment, granules, and vitreous opacities.

WILLIAM A. MANN, JR., M.D.

EAR

Friesner, I., Druze, J. G., Rosenwasser, H., and
Roese, S.: Suppuration of the Petrous Pyra-
mid. *Arch Otolaryngol* 935 659

Of twenty four cases of petrositis, the mastoid process was pneumatic in twelve, mixed in nine, and diploic in three. The pyramid was pneumatic in four, mixed in eighteen, and diploic in two. The tip was pneumatic in one, mixed in six, and diploic in thirteen.

In the majority of cases infection spreads from the tympanum and antrum along the perilymphathic cells. These cells communicate with one another and cannot be distinguished as groups. In a strict sense, osteitis is not always present; the condition is more a combination of osteitis and osteomyelitis.

The pathways of infection are often difficult to determine, but in nineteen of the twenty-four cases studied the route was by way of the superior and posterior perilymphathic structures and in some of these the infra-labyrinthine cells were involved. By no means in all cases does the lesion extend to the tip. Neither are the symptoms always dependent upon such an extension. In the majority of cases the greatest evidence of disease was noted in the petrous pyramid between the superior semi-circular canal and the internal auditory meatus.

Pathological changes were noted in the geniculate ganglion in fifteen cases, and in and about the geniculate ganglion in eighteen. Involvement of the sixth nerve could not be demonstrated in all.

The most significant symptom is pain. This may be referred to the temple, supra-orbital region, eyes, teeth, face, and ear rarely to the posterior part of the skull. As a rule it is continuous with exacerbations. A scant discharge from the canal with pain is more significant than a profuse discharge.

Latent involvement of the sixth nerve is much more important than early involvement. Fever is usually of low grade and not characteristic.

The cases in which operative interference is indicated may be divided into two groups:

1. Cases in which mastoidectomy has not been done the ear has been discharging for weeks, and there is persistent pain with frontal headache. Also cases in which there is meningeal pain and the findings in the mastoid are not sufficient to explain intra-cranial extension.

2. Cases in which disease of the pyramid is evident after a mastoidectomy. Surgical approach is made after the method of Eagleton, i.e. posteriorly.

JOHN F. DUNN, M.D.

Kopetzky, S. J., Gould, S. R., Jones, M. F., Wilson, J. G., and Others: Symposium on Certain Fundamentals in Regard to Suppuration of the Petrosal Pyramid. *Ann Otol Rhinol & Laryngol* 935 44 000

KOPETZKY states that careful study of the findings, repeated roentgenograms, and knowledge of the manner in which suppuration of the petrosal pyra-

mid progresses will soon lead to recognition of the cases in which recovery will occur without additional surgical attack. If such studies were made more often, reported cures of cases which, in the least, are regarded as diagnostically equivocal, would appear less frequently in the literature.

GUNN expresses the opinion that the structural elements in the petrous pyramid—in both the perilymphathic and antilymphathic portions—are the same as those elsewhere in the body; that there is an extremely wide range of variation in the arrangements of these structural elements with respect to each other and to the structures which pass through or near the petrous pyramid; and that a thorough knowledge of the variations in the detailed anatomy of the region is essential from the standpoint of pathology, clinical diagnosis, and surgery.

JONES states that the type of case considered most dangerous is one with an acute infection superimposed upon a chronic or prolonged process.

WILSON says that the development of the petrous bone is related to the development of the skull and may progress beyond puberty. In a study of petrositis in children pneumatic cells are not found at the tip. Air cells frequently discovered above the semicircular canals and lateral to the internal auditory meatus are mastoid cells extending along the base of the skull. In Wilson's preparations the effect as at the tip has most frequently come through regular channels from the middle ear. Since the marrow is part of the reticulo-endothelial system, it is a defensive mechanism. This fact ought to be considered in the treatment of clinical cases.

FOULKE states that petrositis should be defined as an inflammation of the petrous portion of the temporal bone medial and anterior to the arcuate eminence. The petrous pyramid is difficult to study by X-ray examination because of its depth within the skull and because of the variations in its own anatomy. Partial pneumatization of the petrous is the rule in macroscopic serial sections, but, because of superimposed sclerotic or diploic bone, the cells are usually not apparent in roentgenograms. Extensive pneumatization can be seen in roentgenograms, but may be difficult to localize unless a number of projections are made. In Fowler's series of 33 cases of death from petrositis there were infected cells along the superior angle. In some of the cases there were the only pneumatic cells present in the petrosal pyramid. X-ray evidence of pathological changes does not necessarily mean operative petrositis, and apparent absence of evidence of such changes in roentgenograms does not necessarily mean absence of petrositis.

SKYRILL says that the onset of suppurative petrositis usually occurs late, the average time being about a month after the primary mastoid operation. Sixth nerve palsy is not a definite part of the picture of suppurative petrositis. The hearing is not necessarily affected following suppurative petrositis.

EVES states that in the clinical picture of acute suppuration of the petrous pyramid there are attacks

of pain behind and around the eye and in the temporoparietal region, associated with a continuous or re-appearing aural discharge, a continuous low-grade septic temperature, nervous irritability, and increasing involvement of the petrous pyramid by the infection as shown by a series of roentgenograms. External rectus muscle paralysis, transitory nystagmus, nausea, vomiting, and facial weakness are common.

NASH states that a chronic petrous infection is clinically an extended quiescent stage of an acute petrositis. Adequate drainage through a petrosal fistula explains the disappearance of the acute symptoms. In many such cases spontaneous healing occurs. A return of symptoms indicates obstruction in the fistulous tract which usually requires immediate operative interference. X-ray studies are necessary to determine the anatomical structures of the petrosa, estimate the amount and character of the destruction, and ascertain whether or not the bony confines of the petrosa are intact.

PAGE expresses the opinion that the extensive operation is applicable only to cases with malignant involvement of the pyramid and to the type with advanced necrosis and epidural abscess due to suppuration associated with dead labyrinths in cases of chronic suppuration.

MULLIN states that surgical judgment rather than dependence upon dogmatic rules must determine the course to be followed.

FRIESNER and DRUSS say that suppurations in the petrous pyramid tend to drain and heal spontaneously. The lesion in the petrous pyramid does not always extend to the apex, and the symptoms are not dependent upon such extension. The postero-superior route is the frequent pathway of extension. The chief manifestation of the disease process is in the area between the superior semicircular canal and the internal auditory meatus, at the posterior superior margin of the petrosa. In all but one of the cases seen by Friesner and Druss, cessation of pain marked the beginning of recovery. No one procedure is adequate to drain all foci in the pyramid.

ALMOUR also says that no one operative procedure is sufficient for all cases of petrositis.

EAGLETON says that the operation of "unlocking of the petrous pyramid" associated with preliminary ligation of the carotid, or a modification of it is the only procedure that fully exposes all areas around the ear in which infection may be present and allows adequate exposure of the apex. It should be the method of approach in the cases of all patients threatened with or suffering from a complicating intracranial suppuration, as it alone allows drainage of the pontine cistern mesial to the prolongation of the arachnoid mesh without injury to the brain.

LILLIE states that the syndrome of suppuration of the petrous pyramid may be considered an established entity. The structure of the petrous pyramid is so variable that the normal can scarcely be defined. The pathological features of the lesion are fairly well understood. As the pathological changes become

better understood and the clinical observations more accurately interpreted it may become possible to determine the correlation between the location, the nature of the lesion, and the clinical symptoms. The suppurative lesion may be present in the postlabyrinthine, supralabyrinthine, perilabyrinthine, sub-labyrinthine, or antelabyrinthine regions. The surgical approach to the lesion should be conducted in an orderly manner without preconceived ideas or prejudices. Surgical intervention should be described as adequate or rational, not as conservative or radical. The optimal time for surgical interference may be difficult to determine. Every case will be a problem for individualized surgical judgment.

JAMES C. BRASWELL, M.D.

MOUTH

Martin, H. E. Treatment of Cancer of the Lip
Am J Surg, 1935, 30 215

The methods selected and developed at the General Memorial Hospital during a period of twenty years for the treatment of 1,000 cases of cancer of the lip are described. Biopsy is essential except for very superficial scaly lesions most of which are keratoses. From an ulcerating surface a piece is removed with a biting forceps, and from a small non-ulcerating lesion a 2 mm wedge is taken. If metastatic nodes are treated by irradiation, an aspiration biopsy is always obtained.

For early cases, provided metastases to the neck have not occurred, irradiation is preferred because the cosmetic result is better. Very early superficial growths are given from 400 to 1,000 mc-mm of irradiation by direct contact with radon element. In the treatment of more advanced superficial lesions (not more than 4 mm thick) filtered radon tubes are applied by means of a dental modeling compound. For lesions not exceeding 3 sq cm the dose is from 80 to 90 mc-hr per square centimeter, and for lesions measuring from 5 to 6 sq cm it is from 70 to 80 mc per square centimeter. Moderately advanced lesions are treated by a filtered surface application of from 60 to 80 mc followed one or two days later by the interstitial implantation of gold seeds about the base of the tumor with care to avoid contact with the ulcerating surface and infection.

Large bulky lesions from 2½ to 3 cm in diameter are better handled by surgery. These frequently grow so slowly that the neck remains uninvolved after many years. They are removed widely and either an immediate plastic closure is made or the edges are approximated and a pedicle flap from the chest is applied later. The tissues of the lip and cheek are very elastic, and the flap will stretch. The flap should always be lined.

When no cervical nodes are palpable the author is opposed to prophylactic neck dissections as his statistics indicate that metastases will develop in only 20 per cent of such cases. He believes that the superior results reported after prophylactic neck dissections are due to the fact that four-fifths of

persons treated for cancer of the lip will remain well after cure of the primary lesion. Similarly prophylactic irradiation is not used because a prophylactic dose is ineffectual for cancer and a dose heavy enough to control cancer is not justifiable if nodes are not palpated.

In cases in which nodes are palpated increasing use has lately been made of limited or conservative surgery that is, exposure of the node, accurate measurement with calipers, the implantation of a few gold radon seeds to deliver from 7 to 10 skin erythema doses, and closure. In the treatment of nodes from 3 to 6 cm. in diameter irradiation of from 40 to 50 mc. of radon is given and followed by 5,000 r of external irradiation. HARRY C. RAZZANO, M.D.

Browne, D.: An Orthopedic Operation for Cleft Palate. *Brit. M. J.* 1935 2 995

The purpose of operating on the cleft palate is to give the patient control of the passage between the nose and mouth. The author emphasizes that this control is by voluntary muscles and that suitable principles must be employed in their treatment. He presents the idea that the passage is closed by two muscular "slings," the posterior formed by the superior constrictor aided by the palatopharyngeus and the anterior formed by the levator palati which is opposed by the separately innervated tensor palati. Certain physiological observations are best explained by such a scheme.

After a brief evaluation of the classical procedures, Browne describes his own technique in which the two separated ends of the sphincter are freed completely with their nerve and blood supply and are sutured in a plane closer than normal to the posterior wall. Tension is overcome and the sphincter left in a closed position by an encircling suture acting as a pursestring. This suture, of forty-day No. 1 chromic catgut, is passed around the back of the throat in the line of Passavant's ridge, the circle being completed through the soft palate. After repair of the palate the pursestring is tied to close the sphincter completely. Other methods leave the sphincter to heal in full extension.

During a period of two years the author has used this technique in seventy unselected cases. Primary healing occurred in all except three in which temporary gaps developed. One patient died of multiple lung abscesses three weeks after the operation. While it is still too early to judge the speech results, the palates appear functionally superior to those repaired by other methods.

THOMAS W. STEVENSON, JR. M.D.

Chevallier F. and Moutier F.: Tongue and Stomach (Langue et estomac). *Presse med. Par.* 935 N 9 180

The authors point out that many diseases or abnormal conditions of the mucous membrane of the tongue are associated with similar changes in the lining of the stomach. The article contains thirty illustrations in color of similar lesions occurring

simultaneously on the tongue and in the stomach. The pictures of the stomachs are evidently made by gastroscopic study though no description of the technique is given. The following conditions are mentioned and illustrated:

1. Lichen. Twelve cases observed, two lesions shown by illustrations.

2. The smooth glossitis of Hunter characterized by atrophy of the lingual papillae beginning at the tip of the tongue, sets in peracute anemias and hypochromic anemias with achlorhydria. Associated with this is a smooth atrophic gastritis with the blood vessels easily seen through the thinned mucosa.

3. The diffuse wrinkled and fissured tongue and the white horny tongue. These conditions are associated with hypertrophic gastritis with or without ulceration.

4. Mammary glossitis and gastritis. The tongue shows a series of large raised papules closely packed and situated in the middle of the posterior one half or one-third. The gastric mucosa presents a similar appearance with or without edema and ulceration. No clinical signs or symptoms are mentioned.

MAX M. ZWISLOCKY, M.D.

Coates, J. B.: Glossodynia: Reflex Irritation from the Mandibular Joint as the Principal Etiological Factor; A Study of Ten Cases. *Arch. Otolaryng.* 1935 2 334

The author reviews the literature on glossodynia, showing that the causes to which the condition has been attributed have been many and varied, the explanations of the condition inadequate, and the results of treatment unsatisfactory. He then reports ten cases found among ninety cases of neuritis and neural symptoms. In most of these cases the burning pain about the tongue and pharynx was completely relieved after the lower jaw had been repositioned to increase its vertical dimension and bring the condyle out of range of the auriculotemporal and chorda tympani nerves.

The ninety cases from which the ten were selected all showed some or all of the symptoms previously described by the author as a "mandibular joint syndrome" (1) intermittent impairment of hearing with a sensation of obstruction in the ear, tinnitus, and dizziness, which were relieved by inflation of the eustachian tubes; (2) headache in the vertex and occiput and deep around the ears, and burning sensations in the walls of the throat and the sides of the tongue and nose; and (3) later in about 75 per cent of the cases, herpes of the external canal of the ear and buccal mucosa on the side of the neuritis.

Anatomical reasons for the ear symptoms were shown in the effect of over-closure of the jaw on the eustachian tubes with compression of the soft tissues.

The painful reactions were attributed to (1) deep erosion of the bone in the floor of the glossed fossa and impaction of the thin area next to the dura, (2) pressure on the auriculotemporal nerve by the

condyle in its loose motion, and (3) irritation of the chorda tympani nerve as it passes within the edge of the glenoid fossa. The anatomy is described in detail.

The pathological changes in the joint may be due to lack of molar support in an edentulous mouth or uneven pressure permitted by maloccluding natural teeth. When a pathological joint condition is suggested by malocclusion or overclosure or lack of molar teeth and internal palpation shows the joint to be extremely tender, the diagnosis can be confirmed by interposing small test disks between the jaws for short periods of time. If the neuralgic pains are due to irritation by the joint, this results in marked relief of the burning in from ten to forty minutes.

LOUIS T BYARS, M.D.

Kaplan, I. I. Radiation Therapy of Malignancy of the Tongue. *Am J Surg*, 1935, 30: 227

The author points out that irradiation treatment of the tongue is based on the type of lesion which is present. Biopsy should be done on all lesions before treatment.

The treatment of cancer of the tongue is divided into five phases: (1) mouth hygiene, (2) external therapy, (3) local treatment of the primary lesion, (4) treatment of the adjacent lymphatic areas, and (5) care of the general health.

As malignancy is more rampant and radioresistance is increased by the presence of infection, mouth hygiene is of prime importance. Because of the late bone effects of irradiation, all necessary extractions are carried out before the application of radium to the local lesion. Removal of teeth containing metal fillings prevents the ill effects of secondary irradiation.

External therapy can be given while mouth hygiene is being cared for. The treatment of the lymphatic areas is carried out by irradiation or surgery or both.

The irradiation therapy to the neck with the X-rays and radium pack is described.

Treatment of the primary local lesion is carried out immediately after the external treatment of the neck. The local lesion is treated with interstitial radium. If the lesion is in the early stages and quite small, immediate destruction by electrocoagulation or radium irradiation may be carried out without external irradiation.

Two methods of interstitial radium therapy are employed: (1) the insertion of radium or radon needles and (2) the insertion of radon seeds. The technique of screening, application, dosage, and postoperative care is described in detail.

When the tongue lesion has spread to the surrounding mouth tissue, it is treated with radium needles or radon seeds or by the direct application of radium tubes. The methods of protecting the surrounding tissues are discussed.

When the lesion involves the posterior portion of the tongue and is inaccessible for needling, radon seeds are used. They are implanted directly by the

oral route or inserted into the base of the tongue by thrusting the introducers through the neck.

If neck nodes persist following irradiation, they may be treated by direct surgical excision or surgery plus irradiation.

The complications following irradiation of lesions of the tongue are discussed. Among these are soft-tissue necrosis, bone necrosis, painful irradiation ulcers, intractable pain from the jaw up the temporal region, partial locking of the jaws, and edema of the pharynx and glottis.

LOUIS T BYARS, M.D.

PHARYNX

Eggers, C. The Practical Management of Malignancies of the Tonsil. *Am J Surg*, 1935, 30: 254

The opinion held by many that malignancies of the tonsil should be treated by irradiation rather than surgery is based on the fact that many patients first come under medical care when they are beyond the operable state, at a time when palliative treatment is all that can be offered, and the fact that some malignant tumors affecting the tonsil are radiosensitive.

Eggers states that early cases of carcinoma of the tonsil offer a satisfactory field for surgical intervention. Enlarged cervical lymph nodes suggestive of malignancy require a careful search for the primary tumor in the tonsils or the surrounding pharyngeal tissues.

JAMES C BRASWELL, M.D.

NECK

Fried, B. M. Sternoclavicular Branchioma. *Am J Cancer*, 1935, 25: 738

Fried reports two cases of unilateral neuritis of the brachial plexus with a homolateral Horner syndrome and atrophic monoplegia of the corresponding arm.

Roentgen examination of the affected side showed a dense shadow limited to the region of the first three ribs.

Postmortem examination revealed a squamous epithelial cancer which had originated in the region of the left sternoclavicular articulation and had invaded the infraclavicular and supraclavicular fossae, the clavicle, and the upper three ribs. The pleura, the lungs, and other viscera were free from tumor.

The symptoms of the neoplasm are of great interest. The clinical course in the two cases studied may be divided arbitrarily into three stages: (1) the "silent" stage, (2) the stage of transitory or fugitive reactive neuritis, (3) the stage of outward swelling accompanied by a constant neuritis of the brachial plexus with Horner's syndrome.

The symptoms are not specific. Neuritis of the brachial plexus with atrophic monoplegia and Horner's syndrome occurs in neoplastic, traumatic, and inflammatory conditions. Most significant is the combination of a dense apical shadow with a homolateral brachial plexus neuritis. When this combination is found primary carcinoma of the lung or an extrapulmonary carcinoma of the type described

should be suspected. The latter is a well-defined entity for which the name "sternoclavicular bronchioma" seems to be appropriate. Its probable origin from epithelial rests of the lower cleft of the branchial apparatus is discussed and the importance of early recognition of the tumor is emphasized.

JOSSELYN K. YAKAR, M D

Quick, D: Metastatic Epidermoid Carcinoma in the Neck. *Am. J. Surg.* 1935, 50, 307

Cervical metastases from oral carcinoma do not necessarily indicate that the condition is hopeless. However, the results of surgical dissection has been discouraging in cases in which metastasis occurs early. Severe mouth infection is attended by earlier and more aggressive metastases, and under such circumstances the results of surgical resection are especially poor. It is probable that lymph nodes digest and absorb many tumor emboli and only an occasional embolus grows. Emboli entering the blood stream rarely survive. In the presence of an inflammatory reaction, localization of the tumor is more likely to occur probably because of a lowering of the resistance in the lymph nodes. The author believes that a normal cervical lymph node is capable of destroying a tumor-cell embolus of epidermoid carcinoma, and that metastasis takes place only in a lymph node in which resistance has been lowered by infection or some other factor. He therefore regards it as best not to disturb the lymph nodes, but increase their resistance by reducing the amount of infection. Whereas early in his experience there was no standardization of technique he believes that at the present time neck dissection should be limited to cases of fully differentiated epidermoid carcinoma in which the general condition is good, the primary growth is controlled or apparently can be controlled, and the metastatic glands are unilateral and palpable and present clinical evidence of an intact capsule.

It is important to differentiate between neoplastic involvement and inflammatory involvement. Bilateral involvement and infiltration beyond the capsule of the node are contra indications to radical dissection. If dissection is done at all, it must be radical and include dissection of the submental group on the side opposite the posterior triangle, the submaxillary salivary glands, internal jugular vein, and sternocleidomastoid muscle in one mass. The only exceptions to radical resection are the lip cancers. In cases of such lesions dissection should be limited to both submental, submaxillary and upper deep cervical groups on the involved side.

The histological picture of a metastatic tumor also determines the type of operation. Following external irradiation, tumors may become differentiated, and if there is no contra indication to operation, resection should then be done. Anaplastic tumors should not be treated surgically. Tumors of the intermediate type should be operated upon and then treated by the implantation of radium. In most cases the primary growth is best treated by irradiation. If no

nodes are palpable in the neck, external irradiation is sufficient, but the patient should be carefully followed up. In cases in which the lesion has already extended beyond the capsule of the gland, internal irradiation is indicated but should at any be preceded by external therapy. If implantation is done it should be done after surgical exposure and not through a skin puncture. After exposure of the gland and before implantation of the needles it is essential to aspirate the gland to determine whether there is a liquefied central necrotic area. If such an area is found, it should be opened and the cavity packed for two or three days. The author disapproves of the use of removable needles as their removal traumatizes the wound and may therefore prevent primary healing. The results of implantation therapy are better in small nodules than in large nodules.

ALTON OGDEN, M D

Lee J. G.: Chronic Non-Specific Thyroiditis. *J. Surg.* 1935, 31, 94

Twelve cases presenting the clinicopathological features of thyroiditis are reported. The cause of the condition is unknown. The disease is not associated with hypothyroidism or hyperthyroidism, and is obviously not a malignant neoplasia as metastases never occur. Clinically it is most frequently mistaken for carcinoma. The general health is affected only by the local pressure. There are two distinct types, a fibrous and a lymphoid type.

The fibrous type is manifested by the appearance of a hard tumor mass which rapidly enlarges. The mass may remain localized to one lobe but more often extends to involve the entire gland. Diffuse cervical infiltration with accompanying symptoms of local pressure occurs early. This form is characterized microscopically by diffuse fibrosis with a varying degree of lymphocytic infiltration. There is marked atrophy of the acini, with the formation of large multi-nucleated phagocytic giant cells.

The lymphoid type is most frequent by the sudden rapid enlargement of a goiter of several months duration. The growth is bilateral and hard and becomes adherent only to the trachea. This form is characterized microscopically by a dense infiltration of lymphocytes and the formation of lymph follicles with hyperplastic germinal centers. Varying degrees of degeneration of the acini occur with atrophied fibrous.

The two types have been generally regarded as representing different stages of the same disease but from a study of the twelve cases he reports and a review of cases reported by others, Lee concludes that they are separate and distinct entities.

The course of non-specific thyroiditis is benign. Total removal of the growth is not necessary. Partial conservative resection is the recommended treatment. Recovery with subsequent good health is to be expected. Recurrence is rare.

The article concludes with a short historical review of the condition and is followed by a extensive bibliography.

R. C. TEEB, M D

Dunhill, Sir T. Thyrotoxicosis Its Surgical Aspects *Brit M J*, 1935, 2 1034

The number of deaths from Graves' disease in England and Wales in 1922 was 653, in 1930, 1,404. With regard to dogmatic statements concerning the results of operation, the author says "It cannot be emphasized too much that some patients cannot be made safe for surgery, and the sooner the word 'cure' is dropped in this disease the better."

The most common complication of thyrotoxicosis is cardiovascular (auricular fibrillation and congestive failure). The next most common is glycosuria. There may be marked mental derangement. Emaciation may be extreme. Localized myxedema and generalized pruritus may occur. The author discusses each of these complications briefly.

He states that the time for operation should not be hurried. The results of operation are usually excellent. For recurrences, X-ray irradiation or a second operation may be necessary. In the cases of children, only partial thyroidectomy should be done, and X-ray irradiation may be used. With regard to X-ray treatment in general, Dunhill says that 140 of his patients who had had X-ray irradiation under favorable conditions came to operation eventually.

PAUL STARR, M D

Lenz, M. Radiotherapy of Cancer of the Larynx *Am J Surg*, 1935, 30 259

The curability of cancer of the larynx by radiotherapy is influenced by the relative radiosensitivity of the cancer on the one hand and the radiosensitivity of the irradiated normal epithelium, connective tissue, blood vessels, and cartilage on the other. It depends also upon the extent and location of the neoplasm and the accessibility of the entire growth to sufficient irradiation. Exuberating epitheliomas are more favorable than infiltrating types.

Familiarity with the indications, contra-indications, dangers, and correct technique of treatment is of paramount importance.

Undifferentiated epitheliomas of the false cord may frequently be arrested by X-ray therapy without injury of the larynx. Differentiated squamous-cell epitheliomas of the true cords without fixation of the arytenoids may at times be destroyed by similar treatment. However, when a squamous epithelioma of the cord has invaded the laryngeal cartilage, X-ray therapy fails unless it is preceded by laryngectomy. The microscopic picture of the cancer and the surrounding normal tissues is frequently a helpful guide to their relative radiosensitivity.

The radiosensitivity of the epithelium differs in various parts of the larynx. The keratin-producing epithelium of the true vocal cords requires a higher dosage and is shed later than the non-keratinizing epithelium of the remainder of the larynx. In irradiation of the thymus the keratinized Hassall's corpuscles, which resemble epithelial pearls, are found to persist long after the lymphocytes and most of the reticulo-endothelial cells have disappeared.

Similarly, epitheliomas that are rich in keratin seem to be much more radioresistant than those that are free from keratin.

After single large or repeated small doses of radiotherapy there may develop obliterating endarteritis, hyalinization of connective tissue and cartilage, chronic edema, and lack of resistance of the irradiated tissues to infection and trauma. These changes preclude the administration of cancericidal dosage and explain the failure of the older methods of radiotherapy in which sublethal doses were repeated over a period of months or years.

The apparent absence of early changes in the laryngeal cartilage following irradiation should not be mistaken for lack of effect. Chondronecrosis may occur within from a few weeks to a year after irradiation of cancer of larynx, especially if the cartilage has been invaded by bacteria or cancer cells. The larger the dose of irradiation and the shorter the period over which it was given, the more readily will necrosis of the cartilage take place. After intensive X-ray therapy in one or several exposures, as formerly administered, this complication was common.

Tracheotomy, if indicated, should be done below the field of irradiation and before, not after, radiotherapy has been instituted.

The effectiveness of radiotherapy, like that of surgery, is limited to the area which is sufficiently treated. Success depends upon the accessibility of the entire cancer to effective radiotherapy, the ability to determine the full extent of the growth, and accurate placement of sufficient irradiation throughout the diseased area. The more differentiated growths seem more cohesive, extend more slowly, metastasize less readily, and are more likely to be entirely included in the field of irradiation. If once controlled, they are more apt to remain cured. The more undifferentiated epitheliomas may be more radiosensitive, yet seem more loosely constructed, metastasize more readily, and at times may not be radiocurable because of extensions which have escaped efficient irradiation.

The majority of laryngeal epitheliomas arrested by radiotherapy belong to the exuberating group. The second form of epithelioma is one which mainly infiltrates. This type of growth accounts for the majority of failures of radiotherapy. Infection reduces the local radioresistance of the normal tissue, interferes with radiotherapy, and favors late necrosis.

JOSEPH K. NARAT, M D

Garfin, S. W. Cancer of the Larynx. A Study of 202 Cases with End-Results. *New England J Med*, 1935, 213 1109

This report is based on a study of 202 unselected and consecutive cases of cancer of the larynx observed at the Collis P. Huntington Memorial Hospital, Boston, in the fourteen years from January, 1919, to July, 1933. These cases constituted 1.6 per cent of the 12,466 cases of cancer admitted during that period.

In a large majority of the 202 cases the disease had progressed to such an extent that expectation of cure was out of the question and all that could be hoped for was palliation. The late arrival of the patients for treatment may be accounted for in large part by the unwarranted hopeless attitude assumed by some members of the medical profession regarding the condition and the frequent failure of physicians to recognize the early symptoms. Early diagnosis offers the best chance of cure. This is true especially in the early intrinsic type of laryngeal cancer.

Overuse of the voice, heredity, irritating inhalations and the excessive use of tobacco and alcohol have been cited as etiological factors.

Of the patients whose cases are reviewed, 91 smoked, 41 smoked and chewed, 4 chewed only, and 6 did not use tobacco in any form. In the cases of 58 the use or non-use of tobacco was not recorded. The ratio of the incidence of cancer of the larynx in tobacco users and non-users is such that it is impossible to draw definite conclusions regarding tobacco as an etiological factor. Repeated injury and long-continued irritation and inflammation are potential causes of cancer. The authors recognize leukoplakia as a definite pre-cancerous lesion. Vocal abuse is frequently cited as predisposing to cancer of the larynx, but its importance as an etiological factor in the cases reviewed is difficult to prove because of the incompleteness of the records.

In a number of the cases the cancer developed in an originally benign neoplasm. In 7 of 11 cases in which it developed in a papilloma the transition was proved by biopsy. In 2 cases, malignant degeneration occurred in a polyp, and in 1 case the carcinoma developed in a scar following an operation for bronchial cleft.

One hundred and eighty two of the patients were males and all were Caucasians.

Early diagnosis of laryngeal cancer is rendered difficult by

1. The remote location of the tumor
2. The fact that the symptoms may be very slight, especially in the early stages of the intrinsic type
3. The rapidity of the growth, which in some instances may be very marked.
4. Early necrosis and metastases, especially in the extrinsic variety

5. Early and rapid invasion of the surrounding cartilages.

Early diagnosis is of the greatest importance, especially in the intrinsic type. Contrary to the opinion held by many physicians, the prognosis in this type is good when the diagnosis is made early and treatment is given promptly.

In the differential diagnosis of laryngeal cancer it is necessary to consider chronic laryngitis, syphilis, tuberculosis, psoriasis, perichondritis, angiosarcoma, laryngeal polyps, and other benign growths. In advanced cases the diagnosis is easier, but even in these syphilis and tuberculosis must be ruled out.

In 7 of the reviewed cases the treatment was total laryngectomy, in 20, partial operation with radium irradiation, in 17 laryngofissure or hemilaryngectomy, in 33 radium irradiation alone; in 37 roentgen irradiation alone, in 40, radium and roentgen irradiation, in 6, resection of glands, 11th irradiation, in 2, resection of glands only, in 2, partial operation alone, in 17 tracheotomy alone; in 1 implantation of radon seeds in the glands; and in 1 a bronchial cleft operation and radium irradiation of the neck. In 10 cases no treatment was given, and in 4 the treatment was given elsewhere and no information regarding it was recorded.

In the opinion of the author, surgical removal of the growth in the early operative intrinsic type offers a good chance of permanent cure.

In certain types of not entirely operable tumors which are highly radiosensitive the combination of surgery and irradiation has yielded good results.

In far-advanced cases with metastases the author relies entirely on irradiation for temporary relief. He states that up to very recently he regarded treatment by irradiation as inadequate, but his conception of this method of treatment is now being revised.

Of 19 patients with proved cancer who were subjected to operation, seven are living and well. The longest survival to date has been fifteen and one half years and the shortest three years.

In conclusion Garlin says that if radiotherapy can be shown to produce as high a percentage of permanent cures as surgery it will be a safer method of treatment than operation and will be welcomed by both surgeons and patients.

JOHN H. GARLOCK, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS, CRANIAL NERVES

Munro, D. The Modern Treatment of Craniocerebral Injuries, with Especial Reference to the Maximum Permissible Mortality and Morbidity. *New England J Med*, 1935, 213 893

The author believes that fourteen out of twenty cranial injuries do not require operation

There was one death in his cases not operated upon, and two deaths occurred in six treated by operation. He states that one patient out of forty will be sufficiently dehydrated to present toxic manifestations from dehydration. One out of twenty not operated upon will develop intracranial sepsis, usually in the form of meningitis. One out of twenty operated upon will develop meningitis or cortical abscesses.

Munro describes a method of treatment consisting of a combination of dehydration, lumbar decompression, exploratory trephination, and appropriate reparative procedures. ROBERT ZOLLINGER, M.D.

Davidoff, L. M., and Dyke, C. M. Congenital Tumors in the Rostral Portion of the Third Ventricle. Their Diagnosis by Encephalography and Ventriculography. *Bull Neurol Inst New York*, 1935, 4 221

The significant findings of encephalography or ventriculography in nine verified cases of congenital tumor in the third ventricle are presented. Regardless of the route used for the introduction of air, the roentgenograms should include stereoscopic views with the head both vertical and horizontal. The vertical position is of the most importance because of the gravitation of the ventricular fluid to the ventral portions of the cavities. In the presence of a tumor in the anterior portion of the third ventricle the fluid level is interrupted and air within the ventricle has a straight or concave vertical anterior margin. This appearance is shown in several roentgenograms.

The authors list the various changes found in the encephalograms which indicate a tumor in the anterior portion of the third ventricle and describe the findings in ventriculograms when either a single or double puncture is done. ROBERT ZOLLINGER, M.D.

PERIPHERAL NERVES

Craig, W. McK. The Diagnosis and Treatment of Some of the More Common Peripheral Nerve Lesions. *Surg Clin North Am*, 1935, 15 1327

In this mechanical age lesions of peripheral nerves are becoming more common, not only in association with acute trauma to soft tissue, but also in association with fractures and dislocations. They are

manifested by symptoms which develop, subsequent to the injury, in other tissues of the body.

Lacerations about the wrist are likely to interfere with the functions of the ulnar and median nerves. In the repair of lacerations of the wrist in which the tendons and nerves have been divided it is important to approximate tendons to tendons and nerves to nerves. This holds true also for other traumatic lesions. If the surgeon is in doubt as to the structure to be repaired, application of the faradic current will aid identification. It is important to observe strict asepsis and hemostasis. The tendons should be approximated with catgut, and if the wound is believed to have become infected in the course of the accident, it is advisable to use catgut to approximate the cut ends of the nerves. When the patient is convalescing from the injury, an examination should be made to determine whether or not peripheral nerves other than those sutured at the time of operation are involved. The ulnar nerve is probably involved more frequently than other nerves in accidents about the wrists. In time, characteristic atrophy occurs along the ulnar border of the forearm in addition to loss of the usual muscular prominence of the flexor carpi ulnaris muscle and typical atrophy from paralysis of the interossei and hypothenar muscles. Asthenia appears over an area along the ulnar border of the hand, extending as far as the middle of the fourth finger and gradually curving over the region of the styloid process of the ulnar. The nerve next most commonly involved in lacerations of the wrist is the median nerve. Following injury of this nerve little motor weakness is apparent. The sensory changes following division of the median nerve are variable and may include the first two fingers.

Injuries to peripheral nerves may be associated with fractures. Neurological disturbances before reduction of the fractures do not necessarily mean that a nerve has been injured. In the reduction of fractures of the elbow the relationship of the ulnar nerve as it descends behind the medial epicondyle should be kept in mind. The ulnar nerve is usually involved in supracondylar fractures, but is injured more often by too tight a splint or cast.

Tardy ulnar palsy may develop from five to fifteen years after a fracture of the elbow. It may follow hypertrophic arthritis of the elbow joint and occur in such individuals as railroad engineers and desk workers, who bear their weight on the inner side of the elbow. In the presence of fibrous thickening of the nerve, the sheath should be incised longitudinally to free the fasciculi. The nerve should then be transplanted anteriorly, above the medial epicondyle, into a muscle bed within the flexor group of muscles, the tendinous insertion of which is reflected at the medial epicondyle.

Paralysis of the radial nerve occurs more frequently than paralysis of any other nerve of the upper extremity. The frequency with which toxemia attributable to lead and alcohol affect the radial nerve is well known, and the susceptibility of this nerve to toxins is further evidenced by the fact that it may be the only nerve affected in neuritis accompanying acute arthritis and other infectious processes. Injuries to the radial nerve from fractures of the humerus, especially fractures of the middle third of that bone, frequently result in immediate paralysis. Secondary involvement may result from callus or from accidents in the course of the reduction of the fracture. It has been estimated that the radial nerve is involved in from 4 to 8 per cent of all cases of fracture of the humerus. The most common sign of paralysis involving the distribution of the radial nerve is wrist-drop. This may result from pressure on the nerve by a sharp hard edge. It may occur during sleep, as in "Saturday night" paralysis of persons addicted to the abuse of alcohol, or during prolonged ether anesthesia. Compression sufficient to produce paralysis may be caused by severe blows against the arm, without fracture of the humerus. Such blows may produce hemorrhage within the nerve sheath, and complete paralysis may develop slowly as the result of secondary organization of the blood clot. The lesions may call for surgical intervention. Unilateral wrist-drop attributable to syphilis has been reported. Anesthesia over the dorsum of the distal phalanx of the thumb may be the only sensory change.

Adson analyzed fifty-six cases of traumatic brachial paralysis and classified them as follows: (1) the result of trauma to the shoulder and neck without fracture or dislocation, twenty-three; (2) the result of trauma to the shoulder and neck associated with fractures of the clavicle or humerus, seven; (3) paralysis associated with dislocation of the clavicle or humerus, five; (4) the result of bullet injuries, thirteen; (5) the result of gunshot wounds, seven; (6) the result of stab wounds, one. Of these fifty-six cases of injury to the brachial plexus, operation was performed in 36. It consisted of suture of nerves in six cases, reduction of the shoulder in two cases, reduction of the humerus in one case, and neurolysis in one case. Included in the cases treated surgically were sixteen cases in which exploration of the brachial plexus was performed but anastomosis of nerves was impossible. Of the twenty-three patients whose injuries were the result of trauma to the shoulder without fracture or dislocation seven were operated on for complete involvement of all trunks. In five cases exploration was performed and in two cases the nerves were sutured with resulting failure. One patient with partial involvement attributable to internal rotation of the arm was operated on with partial recovery or 50 per cent improvement. Of the thirteen cases of injury caused by a moving belt, exploration was performed in five. In three of the five all the roots were involved in one case, the upper and middle roots and in one

case the middle and lower roots. In all of the five cases operation resulted in failure. The patient with involvement of the middle and lower roots also had a dislocated radius. Reduction with the aid of massage and exercise resulted in an approximately 25 per cent return of function. Failure of return of function resulted in 22 per cent of the total number of cases in which operation was not performed and in 53 per cent of those in which operation was performed.

Superficial lacerations of the leg are not so difficult to repair as superficial lacerations of the wrist because, in the leg, the nerves are more easily identified and probably the only peripheral nerve which must be kept in mind is the external popliteal, interruption of the function of which causes foot drop. This nerve is rather superficial where it passes outward and downward over the head of the fibula. In the various types of fracture of the upper end of the fibula, which are comparatively rare, occasional involvement of the external popliteal nerve has long been a recognized complication. The injury may be part of a dislocation of the knee joint.

The most frequent problem in the surgery of peripheral nerves is the repair of lacerated wounds in which nerves have been traumatized or divided. If the wound was so infected as to suggest the occurrence of infection, no attempt should be made to repair the nerve for in the presence of infection, suture of nerves will fail. The attempt at repair should be delayed until after the tissues have healed and all trace of infection has been eradicated. If neuromas are present they should be excised and the cut ends of the nerve approximated. Interrupted sutures of fine silk passed through the epineurium should be used for the repair and careful approximation should be striven for. The affected part should be immobilized for five or six weeks to aid the process of repair. At the end of that time, gentle motion associated with massage should be begun. If the lesion is near a joint, and if it was found necessary to flex the joint to effect good approximation, more time should be allowed before the joint is extended and the repaired nerve is subjected to strain. If the cut ends cannot be brought together, they should be drawn out as far as possible and the nerves tied. When, after a fracture the nerve is compressed or involved by the overlying callus, the treatment should consist of incision over the recent fracture and an attempt to free the nerve as much as possible. If the nerve is so extensively involved that it is necessary to incise it beyond the site of the fracture end-to-end anastomosis is the repair of choice. Under these conditions, also approximation is important. If the ends cannot be drawn down far enough to meet, they should be brought as close together as possible by long sutures of silk. Sometimes regeneration takes place if the size of the gap does not exceed 1 cm.

It is not advised that all suspected lesions of peripheral nerves following trauma or fracture be explored immediately but it is suggested that they

be observed from three to six months in order to determine the amount of injury as indicated by the return of function. If a nerve which has been injured does not give any evidence of return of function within six months, exploration is advisable to see whether or not it has been injured, whether or not a neuroma has formed, and whether or not the nerve has been severed. In many peripheral nerves which give evidence of complete loss of function early in the course of their regeneration after injury there may be a complete return of function within six months or enough of a return of function to justify observation for at least nine months before exploration. However, if it is practically certain that the nerve has been severed, that it is involved in callus, that it has been definitely injured, or that a neuroma has formed, immediate exploration of the nerve should be advised, neurolysis should be performed if a neuroma has formed, an anastomosis should be made if the nerve has been severed, an excision of the injured portion with end-to-end anastomosis should be performed in other cases. It is therefore evident that the requirements vary in different cases and that advice concerning the repair of injuries to peripheral nerves depends on the history, the physical findings, and the progress. An important factor in the postoperative treatment of nerves which have been severed and resutured, of nerves which have been separated from callus, and of nerves which have been transplanted is the use of passive motion and massage.

Goeldner, E. von. *The Clinical Picture and Treatment of Amputation Neuroma* (Ein Beitrag zur Klinik und Behandlung der Amputationsneurome) 1935. Jena, Dissertation.

Goeldner reports the case of a man who was wounded in the elbow by a grenade splinter in 1918. The injury was followed by marked suppuration and ankylosis of the joint with subsequent paresthesia in the region of the ulnar nerve. Mobilization of the elbow joint by the interposition of fatty tissue and sheathing of the nerve with fat failed to relieve the pain. Later a loose joint developed and amputation became necessary. After the operation the pain was constant and very unpleasant phantom hand symptoms occurred. Since 1924, the patient has undergone operations of the most varied

types. They included several performed for the removal of neuromas from the stumps of the radial, median, and ulnar nerves, and freezing of the nerve and of the brachial plexus high in the axilla with and without removal of the newly forming neuromas. Nothing more than temporary results were obtained until, in 1930, the posterior roots of the fourth cervical to the first dorsal nerves were divided with a successful result which lasted for three months. At the end of that time pains which were more tolerable than those experienced before were caused by new neuromas and the phantom symptoms returned. Therefore it appears that in this case no satisfactory results were obtained from freeing by Trendelenburg's method, carried out on two occasions, once combined with resection and implantation of the nerve ends into the muscle tissue, or from division of the posterior roots which reduced the sensitiveness of the stump.

Acupressure, the production of an eschar, choriotomy, periarterial sympathectomy and the intraneural injection of chemicals were not tried.

Von Goeldner reviews all the methods for the prevention of painful neuromas and describes the Thomson hand in detail. Amputation neuromas are not always painful. Pain is caused first by inflammations, adhesions, or fixation in scar tissue or masses of callus. Neuromas are best prevented by drawing the nerves well out and dividing them high up at the time of amputation. Punctures, eschar production and covering the cross section of the nerve with a flap of perineurium are not certain. The second best means of preventing the formation of neuromas still seems to be the use of formalin. Posterior division of the roots has the disadvantage that neuromas form again at the cross sections.

There are two explanations of the Thomson hand. One attributes it to peripheral irritations and the other to central memory images (body schema in the cortex). In the author's case peripheral irritation played the chief rôle. Phantom-hand symptoms which have vanished or receded far into the background reappear or become accentuated after operation followed by wound healing with inflammation. Accordingly, the central site seems to be only a controlling feature of recurrence; the stimulation of which occurs from the periphery.

(FRANZ) ELIZABETH ANNA CAVENETT

SURGERY OF THE THORAX

CHEST WALL AND BREAST

Dawson, E. K.: A Histological Study of the Normal Mammary in Relation to Tumor Growth. *Edinburgh M J* 1935, 4, 509, 632.

Mammary growth and function in pregnancy and lactation are described and illustrated. The pregnancy stage shows glandular proliferation—adenomas—with progressive differentiation which eventually checks growth in the lobule. The lactation stage shows functioning of the differentiated (secreting) cells side by side with some degree of continued adenoma.

After lactation the newly formed secreting glandular structures degenerate and eventually disappear and the breast returns to an inactive condition. This post-lactational involution is a variable process and possibly delayed or prolonged by such conditions as infection or the absence of lactation.

Abnormal post-lactational involution may give rise to benign tumor formation—fibro-adenoma or fibro-adenomatous. No association with malignant development was discovered in the tissue examined. Benign mammary tumors—adenomas—which emerge during pregnancy and lactation are discussed and illustrated. It is suggested that they are pre-existing formations.

A mammary papilloma in a lactating animal, showing secretory activity side by side with progressive stages of epithelial proliferation to malignant growth, is described and illustrated.

The author made a histological study of malignant mammary growths associated with pregnancy or lactation in fifteen cases. The clinical picture, tumor type and histological findings are described and various problems raised by the coincidence of a malignant growth in the breast with gestation are discussed.

No evidence has been found to suggest that mammary proliferation and function during pregnancy and lactation are associated with the genesis of benign or malignant tumors. The new epithelial tissue produced during gestation is essentially physiological and different from that which may lead to carcinomatous development. Dawson regards it as justifiable to assume that the benign and malignant tumors which become apparent during pregnancy and lactation are pre-existing formations.

BARCEL KARY, M.D.

Morris, C. S.: Fibro-Adenomas of the Breast During Pregnancy and Lactation. *Arch Surg* 1935, 3, 684.

This is a report on 27 fibro-adenomas removed during pregnancy or lactation or present during those periods and removed after cessation of lacta-

tion. The tumors were studied in comparison with 500 fibro-adenomas excised from menstruating women.

These fibro-adenomas were encapsulated epithelial lesions of the pericanalicular and intracanalicular types. The sections were compared with those of normal human breasts during pregnancy and lactation and with preparations from experimental animals.

Fibro-adenomas are modified histologically by pregnancy and lactation. In general it was observed that the changes produced were similar to the physiological changes occurring simultaneously in the surrounding normal breast. The changes could be simulated, if not actually reproduced, in the mammary glands of animals by the administration of appropriate hormones. On the basis of this fact the author suggests that during the early stage of pregnancy fibro-adenomas of the breast show epithelial proliferation in response to the progestational hormones from the corpus luteum. In later pregnancy an increasing concentration of the estrogenic principle produces changes in the fibrous elements. During lactation, distention and secretory activity in the acini are stimulated by the pituitary principle. After removal of these relatively intense hormonal stimuli, involutional changes develop.

Any lump in the breast noted during pregnancy or lactation should be explored immediately unless the patient is under twenty-five years of age or unless the lesion is lactation mastitis. When removal of tissue for biopsy is undertaken the patient should be prepared for the complete operation. If she is lactating the breast should be completely emptied before the operation is performed. A benign lump should be widely excised. When the tumor is larger than one quadrant of the breast and when it is of the spindle-cell type, it should be treated as a sarcoma and the breast removed.

Removal during pregnancy when the breast is less vascular is preferred to removal during lactation when secretory activity is high.

J. DEWEY WILLIAMS, M.D.

TRACHEA, LUNGS, AND PLEURA

Collidge, L.: Obstructions of the Trachea. *J Laryngol & Otol* 1935, 50, 567.

The author divides the causes of tracheal obstruction into (1) extrinsic lesions causing compression of the trachea, and (2) intrinsic diseases in the tracheal wall.

The first group includes mediastinal tumors, enlarged glands, aneurysms, goiters, and cancers of the esophagus. The author warns that in obstruction caused by malignant goiter tracheotomy should not

be done as it does not relieve the dyspnea and may give rise to fatal bleeding into the trachea

The second group of causes of tracheal obstruction includes syphilis, tuberculosis, and new growths. Syphilitic obstruction responds very quickly to treatment. Tuberculosis, apart from tuberculous laryngitis, is rare. In this condition, resection of the trachea may be necessary. The author describes how with an excellent result, he removed $2\frac{1}{2}$ in. of the trachea and turned the skin edges inward to line the defect. He suggests as a possible alternative the establishment of a bronchotomy or a lung fistula for retrograde breathing. Primary tumors of the trachea are rare. Sarcoma and carcinoma occur with equal frequency. The first diagnosis in these conditions is usually asthma. On more careful examination the obstruction below the vocal cords is seen.

Colledge reports illustrative cases of each type and describes the methods by which he treated them.

J DANIEL WILLEMS, M D

Ormerod, F C Obstructions of the Trachea *J Laryngol & Otol*, 1935, 50 903

This author reviews the examples of tracheal obstruction found in the museum of the Brompton Hospital, London.

If cases of obstruction of the trachea due to inhaled foreign bodies are eliminated, lesions arising within the lumen of the trachea are very few.

The author describes a specimen of pretracheal gland which became enlarged, eroded its way through the anterior wall of the trachea, and fell down to the bifurcation where it lodged, caused asphyxiation and sudden death.

Several cases of stenosis and scarring due to tuberculosis, which is a rare lesion, are described.

Newgrowths of the trachea may originate in the tracheal wall or invade it from the thyroid or thymus gland, the esophagus, or the upper lobes of the lungs. The symptoms of tumor in the trachea are dyspnea and a feeling of pressure behind the sternum or in the region of the larynx, depending upon the site of the lesion. There may be blood-stained sputum and stridor. The stridor is usually both inspiratory and expiratory, in contradistinction to the inspiratory stridor of laryngeal obstruction and the expiratory stridor of bronchial obstruction. The voice is affected only when the recurrent laryngeal nerves are affected. This is surprisingly uncommon. Dysphagia occurs when the esophagus is infiltrated.

In one specimen described a papilloma had spread from the larynx into the trachea. Another specimen is that of a carcinoma of the lower part of the trachea, resembling very closely the typical bronchial carcinoma. A third specimen is one of epithelioma of the lower end of the trachea.

A case of endothelioma immediately below the larynx was observed over a considerable period of time at the hospital.

In two cases there was an aneurism pressing on the trachea and causing dyspnea.

J DANIEL WILLEMS, M D

Zappia, M An Anatomicohistopathological Contribution on the Pathogenesis of Specific Superior Lobitis (Contributo anatomo-istopatologico alla patogenesi della lobite superiore specifica) *Rassegna internaz di clin e terap*, 1935, 16 978, 1032

Zappia states that in contrast to common tuberculous infiltrations of the lung there are certain exudative processes which by some investigators have been attributed to greater virulence of the tubercle bacillus. These exudative reactions are pathologically as well as clinically closely related to, if not identical with, those observed in lobar pneumonia, the only differences being that resolution does not occur and the alveolar contents undergo caseation. Because of its similarity to lobar pneumonia, the condition has been called "tuberculous lobitis."

Superior lobitis is a localized tuberculous process which involves the entire superior pulmonary lobe, usually on the right side, and is bounded below by the interlobar fissure.

Roentgenograms show increased density of the affected lobe. On physical examination, dullness on percussion, bronchial breathing, and dry and moist râles are found. The clinical symptoms also point unmistakably to solidification of the pulmonary parenchyma.

Three definite stages may be distinguished and easily demonstrated by roentgen examination: (1) the stage of hepatization, in which the roentgenogram shows increased density of the involved superior lobe, (2) the stage of caseation, in which the affected lobe has the appearance of soft bread, and (3) the stage of cavitation. These three phases follow one another very rapidly, the entire process may develop within a few days. The condition may tend also toward sclerosis. It is then called "tuberculous lobar sclerosis."

After discussing comparatively the clinical, anatomical, and histopathological features of lobar pneumonia and superior tuberculous lobitis, Zappia states that as the two processes present the same evolution their pathogenesis is probably also identical. Moreover, it has been definitely shown that in fibrinous pneumonia, hypersensitivity (hyperergia) of the tissues to the infecting agent (streptococcus or pneumococcus) is of fundamental importance in the pathogenesis. Analogously, tuberculous superior lobitis represents essentially an allergic reaction.

In tuberculous superior lobitis the hilar lymph glands enlarge considerably and, under the influence of pressure, the lumina of the surrounding bronchial tubes in that area become either obliterated or distorted. In addition, vascular and other complications arise, with the result that, during the evolution of the infection, the superior lobe, particularly the right one, becomes sensitized.

Zappia points out also that the superior lobe has a lymphatic circulation of its own. The lymph drains into the hilar lymph glands and therefore the primary adenopathy of these lymph glands may not

only give rise to occlusion of the collecting trunks and a lymphatic stasis, but may also lead to reversal of the current. The infecting agent will then be transported from the hilum toward the apical portion of the lung and set up a typical pneumonic process in the sensitized tissue.

EDUARDO E. SORCIA

García Otero, J.: Suppurations of the Lung. Present-Day Ideas with Regard to Diagnosis and Treatment (Las supuraciones pulmonares. Noción actual sobre diagnóstico y tratamiento.) *An. de chir. Havana*, 1935, 5: 30.

The author reports illustrative cases of the different forms of suppuration of the lungs. The suppuration may be acute or chronic. The former is the beginning stage of the latter. There are two forms of chronic suppuration, one of them with persistent suppuration with exacerbations and retrocessions, and the other with sclerosis of the lungs and bronchi. Some of the localized suppurations of the pleura, especially the interlobar forms, cause difficulty in the differential diagnosis that must be overcome by special techniques.

Small acute abscesses originating from grip may become evacuated and cured without being diagnosed. However, to make sure that no change is left that may cause a recurrence, a bronchographic examination should be carried out. Recurrence may develop after a long time in such cases unless proper treatment is given. Some cases of acute suppuration may present clinical and roentgen signs suggesting tuberculosis. Acute putrid suppurations may become cured spontaneously or under medical treatment or may cause lesions of the lung bringing about recurrences or change into chronic processes. Gangrenous suppurations must not be considered cured unless roentgen and bronchographic examinations show definitely that there are no lesions in the parenchyma.

Cancer is not infrequently masked by chronic suppuration of the lungs. Under such conditions it may be diagnosed by roentgenography in different projections to reveal the edges of the cancer and by lipiodol bronchography. These techniques are of value also in the detection of interlobar suppurations.

Acute abscesses may become cured spontaneously or under stimulating and symptomatic medical treatment. If cure is not brought about in this way and the abscess is well circumscribed and deep, endobronchial treatment may prove valuable. If the abscess is superficial, simple pneumotomy is indicated. In chronic suppurations, cure can never be obtained by medical treatment. Such treatment serves only as palliative or supplementary therapy. Endobronchial treatment may be used in preparation for surgical treatment. In cases in which surgical treatment is contra-indicated by the extent of the process or the general condition, endobronchial therapy is the best palliative treatment. The most effective surgical treatment in chronic suppuration is progressive destruction of the diseased tissue by

cancerization or wedge-shaped resection with the electric bistoury. Antituberculous or antilipogrene serums may be used as preliminary or supplementary therapy to surgical treatment.

ARTURO GOMEZ MONZON, M.D.

Moersch, H. J., and Bowling, H. H.: Primary Carcinoma of the Bronchus Treated Successfully with Surgical Diathermy. *Ann. Surg.* 1935, 1: 939.

The past decade has revealed a marked increase in the incidence of primary carcinoma of the bronchus. That this increase is not entirely dependent on improvement in diagnostic acumen and the wide use of the bronchoscope as an investigative procedure has been demonstrated by various observers.

Experience at the Mayo Clinic has been of a very similar nature. Previous to 1925, the authors saw very few cases of primary carcinoma of the bronchus. Since then, such a diagnosis has been made in approximately 250 cases. In 130 of these it was confirmed by microscopic examination of tissue removed through the bronchoscope and in many of the others it was confirmed at autopsy or by the demonstration of metastatic carcinoma in lymph nodes removed for microscopic examination.

The greatest obstacle in the treatment of primary carcinomas of the bronchus has been the ever-present problem of early diagnosis. In a review of 50 cases of primary carcinoma of the bronchus which came to autopsy Rogers reported that in 44 per cent the first symptom was due to metastasis instead of the primary tumor.

It must be emphasized that any patient who has indefinite pulmonary symptoms, with or without roentgenoscopic findings, should be given the advantage of a thorough bronchoscopic examination because there is no other means by which a small and early lesion of the bronchus can be recognized definitely.

The diagnosis requires the greatest experience and skill on the part of the pathologist. In the authors' experience primary carcinoma of the bronchus is invariably found to be of a high degree of malignancy when graded according to the method of Broder.

The life expectancy in the cases seen by Moersch and Bowling after establishment of the microscopic diagnosis was slightly more than five months when no treatment was employed.

Röntgenotherapy has enjoyed the greatest popularity in the treatment of primary carcinomas of the bronchus because of the ease of its administration and its applicability in all types and stages of the disease. Many observers, however, regard it as of very limited value. While the authors agree that its benefits are limited, Vinson and Luddy have demonstrated that it produces very gratifying results in a small percentage of cases.

Thoracic surgery has made encouraging progress in recent years in dealing with primary carcinomas of the bronchus. However its evaluation will require some time.

The treatment of primary carcinoma of the bronchus directly through the bronchoscope has been found of distinct therapeutic benefit in certain cases. In spite of this, it has not received the attention it deserves. Not only may bronchial drainage be re established, but in favorable cases, the growth may be removed or destroyed by direct excision, surgical diathermy, and the local application of radium.

In 1926, Vinson and Bowing first called attention to the value of surgical diathermy in the treatment of tumors of the trachea and bronchi. Since then they have found it of increasing value.

The authors report a case which emphasizes the good results that may be obtained by surgical diathermy in the treatment of primary tracheobronchial carcinoma. At the time this article was written, twenty-two months after the first bronchoscopic treatment, the patient was in excellent health and performing heavy farm work without distress.

Rienhoff, W. F., Jr., Reichert, F. L., and Heuer, G. J. Compensatory Changes in the Remaining Lung Following Total Pneumonectomy. An Experimental Study. *Bull. Johns Hopkins Hosp.*, Balt., 1935, 57, 373.

The study reported was carried out on 10 dogs. Lung specimens were removed and distended to a degree representing the normal within the thorax. The maintenance intrabronchial pressure necessary to accomplish this with the trachea ligated had previously been found to be 10 mm. Hg.

The surgically removed left lungs were compared with the remaining lungs removed from the same animal at autopsy six months later. The first represented the normal and the second the altered and enlarged lung from the pneumonectomized animal.

A study of the bronchial tree and of the terminal respiratory unit was made by the injection and corrosion method and by the wax-plate reconstruction method of Born. Histological studies were made to determine the terminal alveoli, the relative thickness of their walls, the status of the surrounding capillary bed, and the presence of elastic tissue.

In a comparison of the corrosion specimens of the normal and the remaining lung in the pneumonectomized animal it was found that:

1. The branches of the bronchi in similar positions showed the same number of branchings to the terminal air sacs.

2. The number of divisions of the arteries and veins as well as their size showed a close similarity.

In the wax-plate reconstruction models a marked dilatation of the terminal respiratory unit, the alveolar ducts, the atria, the air sacs, and the alveoli without a difference in the other parts of the bronchial or blood vascular system was found in the enlarged remaining lungs.

Microscopic sections and actual counts of the alveoli in corresponding 200-mm. squares revealed from 101 to 105 alveoli in the normal lung and from 66 to 68 in the expanded lung. The average diam-

eter of the alveolus of the abnormal lung was from 125 to 140 micra while that of the alveolus of the normal lung was from 75 to 82 micra. No difference in elastic tissue was noted.

It was concluded that changes in the remaining lung following pneumonectomy consist of simple dilatation of the respiratory unit made up of the bronchiolus respiratorius, the ductus alveolaris, the atria, the sacculi alveolares, and the alveoli. The blood vascular system is apparently unaffected, and the pattern of the bronchial tree remains unchanged.

RICHARD H. OVERHOLT, M.D.

HEART AND PERICARDIUM

Moore, R. L. Posterior Drainage in Suppurative Pericarditis. *Ann. Surg.*, 1935, 102, 980.

A left-sided posterior approach to the pericardium is recommended as the procedure of choice for the drainage of suppurative pericarditis when the pericardial infection follows a left-sided empyema. The author reports a case in which recovery resulted after the establishment of drainage by this route. In irrigating the pericardial cavity during the postoperative treatment Dakin's solution was substituted for saline solution and the period of convalescence was markedly decreased.

CHARLES BARON, M.D.

ESOPHAGUS AND MEDIASTINUM

Crump, A., and Kasabach, H. A Report of a "Proved Cured Case" of Squamous-Cell Epithelioma of the Esophagus Treated by Intra-Esophageal and External Irradiation. *J. Thoracic Surg.*, 1935, 5, 157.

The patient whose case is reported, a man sixty-three years of age, was first examined in April and May, 1933. X-ray studies revealed an irregular constriction in the upper third of the esophagus. This was confirmed by the "sausage skin" method of Crump. The defect was found to be 5.5 cm. in length. On esophagoscopy, a firm, ulcerated mass was found and a piece of tissue removed from it for microscopic examination.

In June, 1933, the patient was given a total linear dose of 800 mgm.-hr. of irradiation with radium in a special applicator. Later, gastrostomy was performed to permit an increased intake of food. A second application of radium was made in October, 1933. This was followed by a long series of deep roentgen irradiations from November, 1933, to February, 1934.

In March, 1934, esophagoscopy examination revealed a persistent stricture, but no neoplastic tissue could be seen. However, a third application of radium was done under avertin anesthesia. During this treatment the patient died.

No evidences of the epithelioma were found at autopsy nor in any of the sections studied microscopically.

The authors conclude that the results of irradiation therapy are best when the cancer is situated in

the upper part of the esophagus as under such conditions the symptoms appear early there is less food stasis, the mass is generally more limited, and the portals for external irradiation are better than when the cancer is lower

EARL O. LATTIMER, M.D.

Mathews, R. W., and Schnabel, T. G.: Primary Esophageal Carcinoma, with Especial Reference to a Non-Stenosing Variety: A Clinicopathological Study Based on 104 Necropsies. *J Am Med Ass* 1935 105 159

Four autopsies performed within a short period revealed non-stenosing carcinoma of the esophagus. The patients had not had dysphagia, and the condition was not suspected. To determine the incidence and distinguishing features of non-obstructing esophageal cancer the authors carried out a clinicopathological review of cases of carcinoma of the esophagus treated at the Philadelphia General Hospital.

Of 104 esophageal cancers studied at autopsy 55 (53.3 per cent) were of the non-stenosing variety. The chief symptoms of the latter were weight loss, pain in the chest, vomiting, hoarseness, cough, and weakness. All of the non-stenosing tumors were in the middle or lower esophagus. Dysphagia occurred in only 3 of the 55 cases. The patients lived three months after the onset of the symptoms. The clinical course was only one-third as long as that of the stenosing variety of cancer. There was no correlation between the microscopic grade and the clinical course of the tumor in either the cases of stenosing cancer or those of the non-stenosing variety. A correct diagnosis was made in only 2 of the cases of non-stenosing cancer. Errors were due to the absence of dysphagia. Other diagnoses were carcinoma of the stomach or liver, tuberculosis, lung abscess, sarcoma, and mediastinitis.

Esophagoscopy which should always be done in suspected cases, may show a characteristic lesion, but sometimes a third or fourth specimen is necessary to show cancer.

HARVEY C. BALTERSTEIN, M.D.

MISCELLANEOUS

D'Harcourt, J., and D'Harcourt, J.: Penetrating Wounds of the Chest: Observations on a Recent Experience (*Las heridas penetrantes de pecho observaciones sobre una experiencia reciente*) (*Ann Soc de chirug de Madrid* 1935, 4, 103)

This study is based on twenty-three cases of penetrating wounds of the chest which were treated by the authors during a Moroccan campaign. Thirteen of the wounds were simple perforations of the thorax and ten were complicated by lesions of the chest wall, vessels, or nerves. All were clean punctures produced by high-velocity bullets of a caliber not greater than 7 mm., thus corresponding to the type of penetrating chest wounds met with in civil life and contrasting with shell wounds, which were the predominant type during the World War.

Puncture wounds in the cardiac area are not included in the series as they cause almost instantane-

ous death. The authors classify the wounds which reach the hospital as simple wounds involving only the lung and soft parts, wounds complicated by (1) fractures of the ribs and injuries of the intercostal vessels, (2) partial section of the great vessels resulting in hematomas or aneurisms and (3) nerve lesions. The mode of injury, symptoms, complications, prognosis, and treatment of each group are discussed and illustrative cases are reported.

The authors stress the paradoxical fact that the pulmonary lesion is the least serious factor—the gravity of the complicated cases is due to the accompanying lesions. The predominant lesion in uncomplicated cases is a moderate hemothorax. The authors advise against intervention for sterile hemothorax unless it becomes sufficiently large to produce mediastinal deviation and asphyxia. They consider artificial pneumothorax unjustifiable because of the reactive exudate and added danger of infection.

The character and treatment of thoracic wounds complicated by fractures of the ribs and lesions of the intercostal vessels are determined by the character and course of the accompanying hemothorax. The cases should be followed roentgenoscopically and by diagnostic puncture. An increasing hemothorax or one in which the differential count points to infection should be evacuated. The ultimate prognosis in penetrating wounds of the chest accompanied by bony lesions is good as to complete recovery. Of the cases reviewed, infected hemothorax occurred in only two, and in these two cases partial evacuation was sufficient. There was no case of traumatic pneumothorax.

Cases of such chest wounds with lesions of the great vessels are of unusual gravity chiefly because of the difficulty of arresting even a slight continuing hemorrhage and the necessity of placing ligatures in tissues prone to infection. Of the two such cases reviewed, one was a case of diffuse hematoma caused by a small wound of the axillary artery and the other a case of aneurism of the subclavian artery.

The reviewed cases included one case each of lesion of the spinal cord, the nerve roots, and compression of the brachial plexus by a hematoma. There was also an uncomplicated hemiparesis of the diaphragm due to section of the phrenic nerve by the projectile. The authors do not consider the lesion of great intrinsic importance but have found no similar case in the literature.

The article is accompanied by roentgenograms and diagrams.

M. K. MOORE, M.D.

McIntosh, G. A.: Respiratory Physiology in Thoracic Surgery. *Ann Surg* 1935, 101, 95

McIntosh reports a study in which he measured the various subdivisions of the lung volume—the total capacity, the functional residual air, and the residual air—before and after thoracoplasty. He found that within a short period after the operation these values tend to become greatly reduced, and that their absolute measure in the given case must be used by the surgeon as a guide when further

collapse is considered. The ratio of the functional residual air to the total capacity in this connection is important. In most cases the reductions in total capacity and functional residual air are greater than would be produced by the operation alone. This can be explained largely by the change in the pulmonary circulation which, for a time, shows a lessened velocity. The distensibility of the uncollapsed lung is diminished, the change in the intrapleural pressure being similar to that found in circulatory failure. The increased density in the roentgenogram of the contralateral lung, the high normal or elevated venous pressure, the diminished oxygen saturation of the arterial blood, and the occasional hemoptyses that follow operation seem to indicate that the reduction in lung capacity after operative collapse is due largely to a passive venous congestion.

JACOB M. MORA, M.D.

Truesdale, P. E. Diaphragmatic Hernia in Children, with a Report of 13 Operative Cases. *New England J. Med.*, 1935, 213: 1159.

In a review of the literature the author collected 303 cases of diaphragmatic hernia in infants and children. In 165 of these the hernia was found at autopsy, in 90, on X-ray examination, in 35, on clinical examination, and in 13, at operation. Forty-four of the total number were operated upon, 24 successfully and 20 with a fatal termination. The mortality was therefore 45.5 per cent.

In the author's clinic there were 13 cases of diaphragmatic hernia of congenital origin in children. Ten were operated upon. In 1 of these the hernia recurred 3 times at intervals of about a year. The patient has been well without recurrence since 1924. Of the 13 operations performed on 10 patients, 1 terminated fatally. The mortality was therefore 10 per cent. Of the 3 patients not operated upon, 1 died at the age of six weeks, and 1, a child four years old, was awaiting operation at the time this report was written. In the third the condition was discovered at autopsy. In the case which terminated fatally following operation, autopsy showed that hemorrhage apparently from 2 unligated vessels contributed to the unfavorable outcome. Since the pressure in the pleural cavity is reduced following operation with artificial expansion of the lung, sufficient suction was created to keep the ends of these vessels open and bleeding continued into the pleural cavity.

The author maintains that, contrary to the opinion now held by general practitioners and pediatricians, the operation should be done in the early weeks or months of life. The diaphragm, like any other muscular structure of the body, requires exercise for its development. The activity of the normal diaphragm, like that of the heart, never ceases. Unlike most muscle structures of the body, the diaphragm has no rest periods, not even during sleep. Therefore, when it is stalled by the contents of a hernia, symptoms of digestive, respiratory, and circulatory disturbances occur and the child is underdeveloped and under-

nourished. The four-year-old girl now under the author's observation at the hospital gives a history of having gained only 1 lb. in the last two years.

MANUEL E. LICHTENSTEIN, M.D.

Kirshbaum, J. D. Myosarcoma of the Diaphragm. *Am. J. Cancer*, 1935, 25: 730.

Although the diaphragm is often the site of metastatic tumors, it is exceedingly rare for neoplasms to involve this structure primarily. Two cases of sarcoma of the diaphragm with extensive metastases are reported by the author. They are unique in that they represent immature and undifferentiated primary mesenchymatous tumors of the diaphragm. In each, the histological structure suggested a myogenic origin. The first tumor was less differentiated than the second, in which smooth muscle fibers could be definitely identified. These 2 cases were found in a series of 6,254 consecutive postmortem examinations performed at the Cook County Hospital, Chicago, since 1929. One tumor could be identified as a leiomyosarcoma. In the other tumor the character of the cells suggested a relation to striated muscle fibers. The first patient was a man forty-seven years of age, and the second, a man, fifty-eight years old.

The two types of malignant tumors derived from skeletal muscle fibers are discussed: (1) the myoblastic sarcoma that originates from undeveloped muscle fibers, the myoblasts, and (2) the rhabdomyosarcoma which is related to more mature striated muscle fibers. In contrast to the 2 malignant types there are the benign forms: the myoblast myoma and the rhabdomyoma.

The author believes it probable that many undifferentiated myogenic tumors originating from striated muscle are diagnosed simply as sarcoma, and that very undifferentiated myosarcomas may not be identified as such in the course of routine histological examinations. He states that the recognition of the earliest stages of differentiation of the tumor cells toward striated muscle fibers will aid in the identification of these rapidly growing tumors. The fact that in the myogenic tumor cell the tendency toward differentiation remains rudimentary probably accounts for the failure of cross striations to develop. The source of the very undifferentiated rhabdomyosarcomas may be sought in isolated muscle fibers that have failed to differentiate fully during fetal development.

The rhabdomyosarcomas that show cross striations are apparently derived from differentiated striated muscle fibers. Therefore they show a higher degree of differentiation of their cytoplasm. Later the tumor cells may lose their differentiation because of regressive changes or inflammation.

It is interesting to note that the benign myoblastomas, which are also derived from undeveloped skeletal muscle, usually do not tend to undergo sarcomatous transformation.

Tumors of the diaphragm are to be distinguished from primary tumors of the pleura. In cases of

pleural tumor the pleura is usually thickened or nodular may enclose a large sac filled with bloody fluid, or may be transformed into a single, firm, enormous neoplasm. In such cases the diaphragm can be separated easily from the tumor.

In both of the cases reported the clinical course was very rapid. In the first case the duration of symptoms was three and one half months, and in the second, three months. In both cases there were extensive metastases. In the first case the tumor originated from the right half and in the second from the left half of the diaphragm.

Six cases of primary neoplasm of the diaphragm are cited from the literature. In 3 the tumor was malignant. JOSEPH K. NARAY M.D.

Costantini, H., and Meneghetti, G.: The Technique and Physiological Consequences of Operations on the Diaphragm (Technique et conséquences physiologiques des opérations portant sur le diaphragme). *J. de chir.* 1935, 46: 597.

This 64-page discussion includes the authors' opinions and observations, a description of some experimental work, and a review of 300 published reports of operations on the diaphragm.

It begins with a detailed description of the anatomy of the normal diaphragm, including its general form, the structure of the muscle and tendon, insertions on the thoracic cage, and variations in the dome and in its position in relation to changes in position of the body (tilting, bending, etc.), the position of the arm, and the angle of the ribs. Two common points of weakness or defect are described: the costal-umbilical hernia or triangular foramen of Bochdalek, and the defect between the costal and xiphoid insertions known as the "defect of Larrey." Then follows a description of the two aortic surfaces and the relations to the pericardium, liver and esophagus. The chapter is concluded with a description of the blood vessels and nerves.

Under the heading "pathological anatomy" the embryology of the diaphragm is discussed and congenital anomalies are described. The latter include:

1. Complete absence of the dorsal bod leading to hemidiaphragm. This is often associated with visceral malformation and is usually incompatible with life.

2. Aplasia or partial absence of the dorsal bod. This is usually on the left side and amounts to an extremely large foramen of Bochdalek. If arrest of development occurs early there is no sac and the hernia is called "embryonal." After the fourth month, a sac is present and the hernia is called "fetal."

3. Retro-xiphoidal hernia. This is usually on the right side and small. A sac is nearly always present, and the viscera are not adherent. Reduction, which is easy is accomplished best through an abdominal incision.

4. Esophageal hernia.

Under the heading "wounds and ruptures of the diaphragm" the authors discuss:

1. Rupture. Acting on the abdomen alone trauma causes rupture of the dome acting on the chest alone it causes rupture at the costal insertions. The rupture may be complete or partial.

2. Wounds by fire arms and stabbing. The course and extent of the trauma may be determined in part from the position, shape, and size of the puncture wound or wounds.

3. The healing of wounds of the diaphragm. On the right side, spontaneous healing occurs rather constantly under the protection of the liver. On the left side complete healing is very rare and never strong. On the left side it is therefore necessary to operate and repair wounds of the diaphragm while on the right side operation is necessary only to cure for damage to viscera. Immediate intrapleural prolapse on the left side may necessitate an emergency operation. Slow progressive herniation following trauma may cause few symptoms, but usually requires repair. As there is no sac, the ectopic viscera tend to become adherent to intrapleural structures. Therefore operation should be performed early before the adhesions become dense and firm.

4. Foreign bodies in the diaphragm, such as bullets. Eversion of the diaphragm usually occurs on the left side. As the result of extreme thrusting out of the muscle, the dome may rise to the third or even to the second rib. Tumors are exceedingly rare. In the 300 collected cases there were only 4 and only 1 of these was primary. In most cases a tumor of the thoracic wall extends to the diaphragm. In general, all diaphragmatic hernias should be operated upon provided there are no contraindications. The surgeon should carry out the pre-operative study himself and attempt to determine:

1. Whether the hernia is congenital or acquired. In this determination the history as regards trauma and the patient's age are of importance.

2. What viscera are transposed. An X-ray examination should be made after a test meal and a barium enema.

3. The position and size of the hiatus. This can often be determined by X-ray examination.

4. Whether adhesions are present in the thorax or abdomen. A reducible hernia generally has no adhesions. An old traumatic hernia is most likely to have adhesions. Partial intestinal obstruction indicates adhesions. X-ray study of the passage of barium may give definite indications.

5. Pathological change in viscera. Tests for occult blood in the stools should be made as carcinoma and ulcer of the transposed stomach are not infrequent. Tuberculosis of the lung is said to be common.

Operations on the diaphragm are generally serious. In the pre-operative preparation the patient should be given a low-residue diet with mineral oil to reduce the intestinal contents to the minimum. The state of nutrition should be considered. The operation should be carefully planned. Ample exposure is important to shorten the time of the operation and to eliminate prolonged exposure and handling of viscera and

pulling on adhesions. The position of the patient on the table should be such that no shifting is necessary during the operation. Usually some form of pressure anesthesia should be used or should be available for use if necessary. Traction on the mediastinum, pericardium, and esophagus must be avoided. In many cases it is advisable to leave a tube in the pleural cavity with negative pressure for drainage after the operation. As a rule carbon dioxide inhalation, the use of an oxygen tent, and the administration of large doses of morphine are advisable after the operation.

The surgical approaches to the diaphragm are described in detail.

1. The approach to the left dome by way of the abdomen should be through a left paramedian incision parallel with the costal margin. If wider exposure is desired, this may be combined with partial resection or temporary mobilization of the costal margin. Reduction of the hernia may be aided by a tube in the stomach, partial division of the hernial ring, and an intrapleural tube passed through the hiatus alongside the hernia to allow air to enter the thorax as the hernial mass is withdrawn, or pressure anesthesia. If intrathoracic adhesions prevent reduction, they must be divided through a thoracic exposure.

2. The thoracic approach to the left dome. Although flaps and perpendicular incisions have been used, the authors prefer the incision in the seventh intercostal space in front when the diaphragm is at the normal level. If a posterior approach is used, the incision should be made 2 ribs higher. After a skin incision from 15 to 20 cm long has been made, 1 or 2 ribs are resected. Before the pleura is opened, pressure anesthesia should be induced. If the opening must be enlarged, the incision may be lengthened, an additional rib may be resected, or a subcutaneous section of the rib above or below may be done. Intrathoracic division or crushing of the phrenic nerve lowers the diaphragm and aids healing by keeping the muscle quiet during the period of repair. Division of the diaphragm may be necessary.

3. The combined abdominal and thoracic approach to the left dome. Separate openings may be made into the abdomen and pleura by either (1) thoracotomy after failure of laparotomy, or (2) laparotomy after failure of thoracotomy.

In the opinion of the authors it is better to do a thoracophrenolaparotomy if opening of both serous cavities is necessary. In the collected cases this was done 24 times. In 14, it was deliberately planned. Of the various methods, the authors prefer the method described by Charbonnel. In this procedure laparotomy is performed first by a left paramedian incision which is continued into the sixth or seventh intercostal space. The ribs are then divided, the pleural cavity is opened, and the diaphragm is incised as indicated.

The esophageal orifice and the postero-inferior part of the left diaphragm are approached best through an abdominal incision. Most hernias here

have a peritoneal sac and can be reduced from the abdominal side. Harrington recommends the following procedure: left paramedian laparotomy, division of the left triangular ligament, incision of the peritoneum around the orifice, reduction of viscera, suture of the orifice.

The approach to the right dome through the abdomen is essentially the same as the approach to the left. The thoracic approach on the right side should be lateral or posterolateral rather than anterior. For the drainage of abscesses a subpleural transdiaphragmatic or a transpleural transdiaphragmatic approach may be found necessary. A true thoracophrenolaparotomy is very seldom indicated on the right side.

Approach to the antero-internal part of either the right or left diaphragm is necessary only for hernias through the defect of Larré. These hernias always possess a sac and can easily be approached and treated through a high abdominal incision.

For the treatment of a persistent foramen of Bochdalek the postero-internal part of the right diaphragm must be approached through the thorax posteriorly as it cannot be reached through the abdomen. The tenth or eleventh rib posteriorly is resected.

Having reached the diaphragm, it may be necessary for the surgeon to incise the muscle, resect a portion of it, or consolidate a deficient dome. In each case the repair of a defect must be done. In cases of small defects, the edges of the defect are freshened. Interrupted sutures of non-absorbable material are placed, generally as mattress sutures, with overlapping of the edges. Tension must be avoided. Following a combined thoracophrenolaparotomy approach, suture of the diaphragm is begun high up on the thoracic side with gradual removal of the retractors as each suture is tied. As the costal margin is approached, several sutures are placed in the diaphragm and the untied ends brought out through the abdomen. The rib margin is replaced with a wire suture, the diaphragmatic sutures are then tied, and the abdomen is closed.

The closure of an esophageal hiatus is often difficult. Harrington and Truesdale recommend that a tube always be placed in the esophagus. One suture should catch the outer wall of the esophagus but should not penetrate the mucosa.

In the repair of large defects a phrenicotomy is done first. In addition, a solid organ such as liver or lung has been used to close a defect that cannot be sutured. Omentum and stomach have also been employed but without satisfactory results. In 1 case of large defect of the left dome Hybbinette incised the right dome sufficiently to allow suture of the defect on the left. On the right side the liver was allowed to occlude the defect. Re-insertion of the attachments of the diaphragm at a higher level has been recommended. In 1 case Harrington and Carrington performed a thoracoplasty. Plastic procedures with the use of flaps from the psoas or latissimus muscles or the abdominal wall or of free

grafts of fascia lata have been advocated. The use of grafts of fascia lata is recommended by American surgeons.

The second part of the article on the physiological consequences of operations on the diaphragm is largely a repetition and summation and is well covered in the summary and conclusions. The following 3 general conclusions are drawn:

1. The technical execution of operations on the diaphragm is ordinarily difficult.

2. The immediate gravity of opening the pleural cavity cannot be predicted.

3. The end-results of operations on the diaphragm are in general satisfactory.

In discussing these propositions the authors emphasize the importance of a careful clinical and roentgen study of the patient. They state that esophagoscopy also should often be employed. The advisability of preliminary phrenicotomy, pneumothorax, or even thoracoplasty should be considered.

In the cases of certain patients who are poor risks or inoperable, such a procedure may be sufficient. The surgeon must be prepared to use pressure anesthesia. The choice of the route of approach according to the type, size, and situation of the lesion is discussed. On account of the danger of opening the pleura with resulting so-called pleural shock and mediastinal flatter, the authors advise laparotomy first with the incision so planned that it can be continued into a thoracotomy if opening of the thorax is found necessary. This gives the best exposure, shortens the duration of the procedure, and decreases the shock which is due principally to loss of heat and moisture from the exposed lung and pleura. Drainage of the pleural cavity by continuous suction is usually necessary if the pleura has been opened. Postoperatively inhalations of carbon dioxide and oxygen and large doses of morphine are advisable, and an oxygen tent should be used if indicated.

MAX M. ZIMMERMAN, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Kaufman, E. Peritoneal Adhesions (Ueber die Bauchfellverwachsungen) *Beitr z klin Chir*, 1935, 161 599

From the practical viewpoint it is best to divide peritoneal adhesions into 2 groups, namely, the spontaneous and the postoperative. Spontaneous adhesions are of traumatic, congenital, and inflammatory origin. Traumatic adhesions, which form as the result of blunt traumas to the abdominal wall, are of particular importance from the standpoint of insurance. Spontaneous adhesions are usually of inflammatory origin. Of great importance are the group which are formed without preceding organic changes. These are most common in the right upper quadrant of the abdomen, cause pain in the region of the stomach, spasms, vomiting, constipation, and emaciation, and are frequently the result of a healed gastric ulcer. The author saw 22 such cases. Surgery was performed on the basis of an erroneous diagnosis such as "gall stones" or "gastric ulcer." In 18 cases the pains ceased after the operation, but as they recurred in a large number Kaufman is now more cautious in deciding to operate in such cases.

The question whether pericolicitis (Jackson's membrane) is of congenital or inflammatory origin has not been answered. Purely congenital changes usually cause no pain. Surgery is done only for interference with gastro-intestinal motility and then is limited as much as possible. The author saw a case of the double gun barrel formation of Payr at the splenic flexure in a woman thirty-six years old. The contrast medium was still present in the transverse colon fourteen days later. Operation showed the transverse colon to be as thick as the thigh, and disclosed a pseudo-membrane at the splenic flexure. Anastomosis between the transverse colon and a loop of bowel was unsuccessful. Re-operation revealed fecal stasis in the excluded loop. Resection resulted in cure. In 2 cases similar changes were observed at the right flexure. Release of adhesions in one case and resection to the middle of the transverse colon in the other were followed by recovery.

Postoperative adhesions were found by the author in 88 per cent of 509 re-laparotomies. The extent of the adhesions was variable. In half of the cases they were limited to a small area. They occurred most often in the right upper and lower quadrants and very often involved the omentum. In most of the cases an appendectomy had been performed.

The symptoms of postoperative adhesions may be divided into 3 groups: general complaints due to adhesions, disturbances of motility, and intestinal obstruction. Those of the first group are pains, constipation, and distention. The pains are often radi-

ating and of a cramp-like nature. Roentgen examination shows delayed emptying, links, and spasms. Neurological examination is very important. The subjects are frequently neurasthetic and hysterical, and the majority of them are women. Social insurance is also a factor.

Of the conservative methods of treating postoperative adhesions, diathermy is especially to be considered. Surgery should be the last resort. It is indicated only when definite local changes persist, there is definite obstruction, or the presence of foreign bodies is suspected. In judging the findings great caution is necessary. Flat adhesions cause no difficulties and should not be severed, but bands should be cut. In the cases of patients who have been subjected to several operations even more conservatism is necessary. Such nervous patients spend a good part of their lives in hospitals. Sometimes, however, true intestinal obstruction occurs, as in the case of a woman twenty-eight years old who had an incarceration of the bowel under an adhesion between the ileum and the mesentery.

In one-fifth of the reviewed cases with symptoms of the second group there was a sudden attack of ileus due to intestinal links which as a rule relaxed spontaneously. To determine the site of the obstruction a roentgen examination was made (horizontal level formation with an air bubble).

In the cases with symptoms of the third group intestinal obstruction is the most severe complication of the postoperative adhesions. It is caused by the linking of adherent loops of intestine or incarceration of the intestine under a band. In most of the cases an appendectomy has been performed. The time for operation is difficult to determine. At the beginning, the surgeon hesitates to operate, and later it is often too late. The intervention should be the minimal procedure that will restore the patency of the intestinal lumen. Enterostomy should be avoided whenever possible. As the obstruction recurred in 3 of the reviewed cases the prognosis is not always favorable.

Efforts to prevent the formation of adhesions have not been very successful. The best results have been obtained with humanol. The author considers prophylaxis unphysiological as the introduction of foreign substances exerts a stimulating influence on adhesion formation. Of chief importance in the prevention of adhesions are the operative technique, early stimulation of peristalsis, and the avoidance of iodine. The stump of the appendix should be buried. Drainage should be established when the chance of primary healing is considered doubtful. Operation is contra-indicated when the diagnosis is uncertain. Unwarranted surgery should be avoided.

(STREISSLER) JACOB E. KLEIN, M.D.

Scheanning, C. K.: Pneumococcal Peritonitis (Ueber Pneumokokkenperitonitis) *Acta chirurg Scand* 1935, 77: 256

The author reviews a fifty-six cases of pneumococcal peritonitis. Thirty-seven of the patients were children and nineteen were adults. In seven cases the peritonitis was a more or less accidental finding at autopsy. A typical history was given only in the cases of thirty-five children and fourteen adults.

Pneumococcal peritonitis is not rare. The author has found it in one of every eleven cases of acute appendicitis in children under sixteen years of age.

The infection of the peritoneum may occur by different routes and from different primary foci. The classical route by way of the fallopian tubes seems to be followed relatively rarely.

Frequently it is to be assumed that infectious material was swallowed and caused infection of the peritoneum over the intestine. In one of the cases cited the occurrence of intestinal infection by the hematogenous route was demonstrated.

The lungs and tonsils are frequently the primary foci. Lymphogenous infection of the peritoneum from the lungs was proved definitely in one of the cases reviewed and may have occurred also in others. There was also one instance (possibly two) of hematogenous spread from the lungs. The frequent finding of pneumococci in a macroscopically normal peritoneum when the diaphragm is microscopically normal in cases of death from pneumonia demonstrates that the possibility of hematogenous infection of the peritoneum is frequent in pneumonia.

The reviewed cases offered no clue as to the route of spread of the infection when the condition begins with a sore throat. In cases of otitis media the infection probably spreads by the hematogenous route.

In the reviewed cases all of the adults died. In the cases of children under sixteen years of age the mortality was 31-43 per cent, which was somewhat lower than that shown by Rohr's statistics. The mortality in the early stage was somewhat greater in the cases in which operation was performed (50 per cent) than in those in which operation was not performed (50 per cent) but the difference was less than that shown by Rohr's statistics. Nevertheless it was sufficiently great to indicate that, when the diagnosis is possible, operation should be delayed until the peritonitis has become localized. However it should not be delayed long enough for the occurrence of spontaneous perforation.

GASTRO-INTESTINAL TRACT

Carli, C.: Benign Tumors of the Stomach (Benign tumori dello stomaco) *Arch ital di chir* 1935, 90: 44

The author reports a case of adenopapilloma of the stomach and reviews the subject of benign gastric neoplasms. His patient was a man forty years of age who gave a history of indefinite epigastric distress for about five years. Roentgen examination of the stomach showed a filling defect in the py-

loric region. At operation, a polyp of the pylorus was found. This was excised locally. The patient made an uneventful recovery.

The diagnosis of adenopapilloma was made by microscopic examination. On account of the long history and the presence of chronic gastritis in this case, the author is of the opinion that chronic inflammation may be an etiological factor in the development of benign neoplasms of the stomach.

PITZER A. ROSE, M.D.

Pettinari, V.: A Contribution to the Knowledge of Carcinoid of the Stomach (Contributo alla conoscenza del carcinoido dello stomaco) *Arch ital di chir* 1935, 90: 695

A sufficient study has been made of carcinoid tumors in general to allow their early recognition and differentiation from other epithelial tumors. Such neoplasms frequently occur in the vermiform appendix and small intestine, but their development in the stomach is rare. In the literature the author was able to find the records of only five cases of gastric carcinoid. In all, the tumor was first recognized at autopsy.

In this article Pettinari reports a case which he believes is the first in which the nature of the tumor was recognized during life. The patient was a man forty-seven years of age, who had been entirely well until about three months before the examination. The first disturbances were a feeling of weight in the abdomen after meals, digestive disturbances, anorexia, swelling in the epigastrium, and frequent regurgitation and occasional vomiting after meals. These disturbances rapidly became more marked. During the last week before the examination, vomiting and pain were constant after meals even though only fluids were taken. The general history was normal.

Physical examination revealed very few positive findings. There was some tenderness in the epigastrium and the stomach was somewhat distended. Gastric analysis disclosed only a slight increase of acidity. Examination of the blood and stools showed no pathological findings. Roentgen examination revealed almost absolute pyloric stenosis.

At laparotomy the stomach was found markedly dilated. In the pyloric region there was an ovoid tumor about the size of a large nut, which had a rounded smooth surface covered by normal serosa. There was no thickening, contraction, adhesion, or vascularization of the pyloric region. The duodenum was normal. Posterior to the pylorus, near the pancreas, were a few small movable lymph nodes.

The pyloric region was resected. The postoperative course was uneventful.

Examination of the gross specimen showed that the complete pyloric stenosis was due to an intra-parietal tumor. The mucosa appeared normal. Sections made by sectioning the tumor in its long axis showed a well circumscribed nodule which was white, uniform, fibrous, entirely discrete, and separate from both the serosa and the mucosa.

On histological examination the mucosa was found normal except for a few dilated glands. The muscularis mucosae was normal and uninterrupted. The new growth occupied the entire thickness of the remaining wall up to the serosa. The serosa was not involved. The development was principally from the submucosa, but the muscle layers also showed some invasion with dissociation of a number of their fibers. The constituent cells varied somewhat in different parts of the mass. The most numerous were large polygonal cells of the epithelial type with an abundant cytoplasm and a large vesicular nucleus. There were numerous mitotic figures. These large cells usually formed cords but in places assumed a pseudoglandular arrangement. Polynuclear cells were not uncommon. Adjoining the large cells were other large cells containing hyperchromatic nuclei and scant cytoplasm, which were not so sharply polygonal but rather polymorphic so that many had the appearance of young connective tissue cells. A rich connective tissue stroma and many inflammatory cells were present.

Studies of the tissue were made with a large number of stains. Of most interest were those made with silver impregnation. This procedure demonstrated cells which were different in that the silver was present in the cytoplasm as small granules. This feature identified these cells as argentophilic and allowed the diagnosis of carcinoid tumor.

The factors upon which the diagnosis of carcinoid tumor are based are a submucous or intramucosal localization of the mass, integrity of the mucosa, encapsulation of the tumor, a tendency toward a lobular structure containing many cells resembling epithelial cells, the presence of argentophilic cells, slow development of the tumor without the formation of the metastases, limited size of the tumor, and the absence of a general reaction.

The author reviews the several theories regarding the histogenesis of carcinoids. A. LOUIS ROSE, M.D.

Hudson, H. W. Jr. Giant Diverticula or Reduplications of the Intestinal Tract. *Sc. England J. Med.*, 1935, 713-1123.

Congenital cysts and diverticula (other than Meckel's diverticulum) and partial reduplications of the intestinal tract are unusual congenital anomalies. In the literature the author has found records of eighteen reduplications or giant diverticula. To these he adds three personally observed cases, one that of a male infant three months old, the second that of a female infant six months old, and the third that of a girl twelve years old. In the first case the anomaly was not recognized completely until a second operation was performed. In the second case the character of the anomaly was not recognized at operation and autopsy showed the condition to be of the jejunum duplex type with the gastric mucosa presenting acute and chronic ulceration. In the third case the anomaly was recognized at once, probably because of the surgeon's experience in the first case. All of the patients died.

These three cases add weight to the opinion expressed by the author in a report on Meckel's diverticulum that in the cases of infants and children with a long history of symptoms referable to the abdomen a thorough exploration of the abdominal viscera should be made when other diagnostic methods prove inconclusive. This is important especially if malignancy is a symptom. There is every reason to believe that resection of such anomalies is feasible and will relieve the symptoms if the laparotomy can be performed at a time when the patient is in good condition. As it is difficult to demonstrate these anomalies even at operation, Hudson suggests that transillumination of the mesentery may be helpful.

Anomalies of this type do not necessarily cause symptoms and in some instances have been incidental findings at the autopsy following death from an unrelated cause. Frequently, however, they are responsible for serious symptoms and death. The symptoms produced by those located within the abdomen may be broadly grouped as (1) intermittent abdominal distress or pain, as in the author's second and third cases, (2) intestinal obstruction, as in the author's second and third cases, and (3) hemorrhage into the intestinal tract or peritoneal cavity or both, as in the author's first and third cases. These symptoms are readily understood since obstruction, partial or complete, may be produced by encroachment of a cyst or diverticulum on the lumen of the intestine and by the production of volvulus and intussusception. Hemorrhage is best explained by the formation of ulcers in the mucosa adjacent to heterotopic gastric mucosa.

A bibliography on enteric cysts, diverticula, and reduplications of the intestinal tract is appended.

ELLA M. SALMONSON

Carter, R. F. Carcinoma of the Jejunum. *Ann. Surg.*, 1935, 102-1019.

Carcinomas of the jejunum are either annular constricting adenocarcinomas, which are the most frequent, or the less common polypoid carcinomas, which grow into the lumen of the bowel and frequently cause intussusception.

Late phase of carcinoma of the jejunum has been adequately treated in the literature except therapy which is usually described as consisting of excision when possible with an end to end or a side to side anastomosis depending upon the condition found at the operation. For inoperable cases, side tracking operations alone are advised.

No well-devised plan has been advocated for the treatment of patients with jejunal obstruction. Such patients should be studied first to determine whether an alkalosis secondary to the vomiting is present. The pre-operative administration of from 3,000 to 4,000 c. cm. of fluid with 400 gm. of glucose and from 30 to 40 gm. of sodium chloride is indicated in every case of high intestinal obstruction which does not show signs of sepsis. Frequent lavage or continuous intubation with a Levine tube during the

pre-operative period is of advantage to drain the proximal segment of the duodenum and jejunum.

In carcinoma of the jejunum at the ligament of Treitz or within 12 in. distal to it there arises the necessity for particular consideration in performing an anastomosis after excision of the segment of the gut containing the growth. The edema, hypertrophy and dilatation of the gut proximal to the growth make an end-to-end anastomosis in this region difficult. The disproportion in the caliber of the two segments, the rapid peristalsis in this region, and the shrinkage of the proximal segment after operation tend to increase the danger of suture line leakage. Under such conditions side-to-side union is the procedure of choice. Because of the proximity of the ligament of Treitz there may not be sufficient jejunum below this point after excision of the tumor to permit a side-to-side anastomosis. In one of the cases reported by the author the third portion of the duodenum was seen bulging to the right of the ligament of Treitz. This observation led Carter to adopt the following procedure. The proximal jejunum is closed by ligation by a method similar to that commonly used on the duodenum in the Polya partial resection. The anterior leaf of the transverse mesocolon is fastened to the right of the ligament of Treitz. This permits the third portion of the duodenum to prolapse into the operative field. The distal jejunum is swung contra-clockwise to the right of the ligament of Treitz and then anastomosed side-to-side to the third portion of the duodenum. The upper edge of the slit in the mesocolon is sutured anteriorly to the duodenum, and the mesentery of the distal jejunum is stitched along its cut border to the peritoneum of the posterior abdominal wall.

The patient cited who was subjected to this procedure is alive and well fourteen months after the operation. *Samuel J. Pogorelec, M.D.*

Chesterman, J. T.: Hemorrhage per Rectum as an Indication of Disease in Meckel's Diverticulum. *Br J S* 1935, 3: 307

During a period of three years four cases of severe hemorrhage from the rectum due to disease of Meckel's diverticulum were admitted to the Surgical Service of the Sheffield Royal Hospital. Two per cent of all bodies contain Meckel's diverticulum. In 85% per cent of these the diverticulum lies free in 10 per cent it has a free or attached band at the apex, in 6 per cent there is a fistula, and in the remaining 1% per cent there is some other abnormality.

Hemorrhage from Meckel's diverticulum may be due to a peptic ulcer of the diverticulum occurring at the junction of the aberrant gastric mucosa with that of the diverticulum. In rare instances it results from mechanical irritation when no aberrant mucosa is present. At times it is caused by inflammation, infarction, or neoplasm. About 85 per cent of the cases are those of males. The hemorrhage is usually sudden and severe, but in cases of neoplasm it may be slight and continuous. Pain occurs in about half

the cases. It is usually of the colicky type, but never severe or prolonged. About 15 per cent of the subjects have nausea and vomiting unassociated with abdominal pain or obstruction. Examination is negative except for the finding of blood in the stool. Melena is rare between the ages of five and fifteen years. Whenever it occurs, it should suggest the possibility of Meckel's diverticulum.

The treatment indicated for massive hemorrhage from the bowel associated with Meckel's diverticulum is immediate operation for extirpation of the diverticulum. If the hemoglobin is below 30 per cent, transfusion should precede the operation. In cases without perforation the prognosis is good.

Alton Ochsner, M.D.

Hirst, A. F.: Ulcerative Colitis. *Guy's Hosp Rep* Lond 1914, 35: 7

Ulcerative colitis is most frequent in both sexes between the ages of twenty-one and forty years. Males and females are equally affected. Hirst is of the opinion that the disease is the result of infection of the colon, and that in the majority of cases a dysentery bacillus or an allied parenteric organism is the infecting agent. He does not believe that Bagen's diplococcus plays a part in the pathogenesis of the condition. He states that unless the disease is treated promptly preferably with a specific antiserum, it is likely to become chronic because of secondary infection by (1) the normal bacteria of the colon (the bacillus coli and enterococci) which may develop toxic properties because of the excess of soluble protein of the blood and poia in the surrounding medium, (2) parenteric organisms swallowed in the food, which are non-pathogenic or only slightly pathogenic in the normal colon but may multiply and produce infection in the ulcerated colon, or (3) streptococci from infection of the upper respiratory tract. The condition of the colour mucosa membranes may be aggravated by malnutrition due to a restricted diet poor in vitamins, the anemia of continued blood loss, or the allergic response occurring in patients sensitive to certain proteins.

In the differential diagnosis it is necessary to consider (1) amoebic dysentery, (2) hemorrhagic proctitis, (3) carcinoma of the pelvic colon and rectum, (4) polyp, (5) purpura, (6) multiple telangiectasia, and (7) enteritis. The history, proctoscopic examination, and X-ray investigation of the colon facilitate diagnosis. The absence of haematuria in a roentgenogram after an opaque contrast is widely recognized as a characteristic feature of ulcerative colitis, and the distribution of this abnormality is regarded as an indication of the distribution of the disease. Absence of haematuria is due to paralysis of the muscularis mucosae which is involved in the inflammation of the submucosa. Haematuria may return with cure of the disease. Regional ulcerative colitis involving isolated segments of the colon may occur. This was described in 1930 by Bagen and Weber. The symptoms are milder. The condition must be differentiated from amoebic dysentery and

tuberculosis of the colon, in both of which the distribution may be similar

In the cases of ulcerative colitis reviewed by the author the most common complications were polyposis, stricture, arthritis, anal fistula, and perirectal abscess, perforation, cutaneous lesions, and carcinoma. Less frequent complications were nephritis, endocarditis, ocular disease, mesenteric thrombosis, and thrombophlebitis. Polyposis is recognized as a common sequela of partial or complete healing in very chronic cases, its incidence being about 10 per cent. It may be a source of hemorrhage, may become malignant, or may serve as a focus for reinfection. It is best treated by diathermy fulguration through the proctoscope. Carcinoma occurred in approximately 2 per cent of the cases reviewed by the author and was always of a high degree of malignancy. Many of the subjects were young persons. Strictures may develop in the course of healing of very chronic cases. The extent of the stricture may be determined only by means of a barium enema. It is difficult to differentiate between an organic fibrous stricture and a stricture resulting from spasm. Spasm may be noted to relax following the application of magnesium sulphate through the sigmoidoscope. Operation, which is usually a short-circuiting procedure, should not be done unless stasis and obstruction ensue. Perirectal abscess is a serious complication which develops as a result of infection of one or more anal crypts from the purulent rectal discharge. One or more fistulae may develop as long tracts burrowing high up on the rectum from beneath the anal sphincter. Rectovaginal fistula has been reported. Painful anusitis with spasm of the sphincter is a common complication. Perforation of an ulcer occurred in only 3 per cent of the Mayo Clinic cases. It is rare because of the superficial character of the ulcers. Cutaneous and ocular complications are of trophic origin, being due to vitamin deficiency in the diet and anemia, and respond to an adequate diet. Multiple arthritis, a well-recognized complication of bacillary dysentery, occurred in 4 per cent of the reviewed cases of ulcerative colitis.

The mortality of the disease has decreased from approximately 50 per cent in 1909 to 35 per cent in a recent series of cases. The mortality in private practice, especially in the cases of patients who have had the advantage of institutional treatment, is very much less, 13 per cent. The mortality in Hurst's private cases is only 7.5 per cent.

The prospect of recovery is good. There is a tendency toward recurrence of the disease, but if each recurrence is treated adequately until the clinical evidence and sigmoidoscopic examination show that all traces of active disease have passed, the ultimate prognosis should be good. Relapses occur with acute infection, food poisoning, dietetic indiscretions, exposure to cold, and, less frequently, fatigue.

The treatment should include complete bed rest until the acute stage with fever is passed. The diet should be liberal, but should not include fruit or vegetable fibers which, being indigestible, may irri-

tate the inflamed colonic mucous membrane. A too-restricted diet results in loss of weight and strength, anemia from lack of iron, and the complications of avitaminosis. In the author's cases local treatments are usually limited to enemas of weak tannic acid solution ($\frac{1}{2}$ to 2 gr. to the ounce) which are retained for thirty minutes. When the disease is localized to the rectum, bismuth subgallate powder is applied locally through the proctoscope. Codeine is given for the control of diarrhea, and atropine is administered in a dosage sufficient to control spasm. When pain is due to gaseous distention, charcoal will usually give relief. Hydrochloric acid is administered for achylia. Iron therapy and transfusion are indicated in anemia.

Believing that the majority of cases are due to infection by a dysentery organism, Hurst has advocated the use of polyvalent antidysenteric serum since 1920. After preliminary desensitization, the serum is given intravenously in increasing doses of 20, 40, 60, 80, and 100 c.cm. on consecutive days. Rapid recovery resulted in early cases and sometimes striking results were obtained even in chronic cases. In a small number of chronic cases the serum has no effect. Hurst attributes the beneficial effect of the serum to a foreign protein reaction in addition to a specific effect. Favorable results from the use of serum have been reported also by Ryle and others in England and by Crohn of New York. Hurst has never seen beneficial results from any form of vaccination or from the use of Barden's serum. The after-treatment consists of the prevention of recurrence by treatment of infections of the upper respiratory tract and anal infections. The patient is kept on a roughage-free diet and given sufficient paraffin to keep the stools soft. Aperients are withheld.

Surgical treatment is reserved for patients who are very ill. Appendicostomy and cecostomy are not favored. Colostomy has nothing to recommend it. Ileostomy is described as a favorite operation in America to place the colon at rest. In some cases in which the colon is hopelessly disorganized and colectomy is indicated a temporary ileostomy may be necessary. However, many patients prefer the colitis to the inconvenience of an ileostomy. It is rare for the colon to heal sufficiently to allow closure of the stoma without causing recurrence. Colectomy is usually contra-indicated, but in severe cases may be necessary to save life.

LOUIS SPERLING, M.D.

Junghanns, H. Villous Tumors of the Colon and Rectum. Clinical Observations and Pathologico-Anatomical Studies of Operative Material of the Schmieden Clinic (Die Zottengeschwulste des Dickdarms und Mastdarms. Klinische Beobachtungen und pathologisch-anatomische Untersuchungen am Operationsmaterial der Schmiedenschen Klinik.) *Ergebn. d. Chir.*, 1935, 28, 1.

This article reports a continuation of the investigation begun by Schmieden and his co-workers concerning the etiology of cancer of the large intestine. It demonstrates that polyps are of etiologic impor-

tance in this cancer since of 130 operative specimens, 70 per cent showed an unquestionable relationship to intestinal polyps. Of the cancers of the colon and rectum which developed from polyps only 37 belonged to the villous tumor group. These 37 lesions and 1 previous cancer were subjected to exact pathologic-anatomical and clinical investigation. The findings are reported with detailed clinical histories and 51 illustrations, the most interesting of which are the roentgenograms. The latter show a characteristic surface picture since because of the segmented and cleft surface the opaque medium produces corresponding opaque and transparent shadows.

Classification of villous tumors according to their benignancy or malignancy resulted in the recognition of 3 groups: (1) those which are absolutely benign, (2) those with precancerous changes in the epithelium, always in the middle part, and (3) malignant tumors. The first indication of the formation of a true cancer is the appearance, in the center of an ulcer with a hard base (in 24 of 38 cases). In half of the cases there was a colloid cancer. The villous tumors are to be placed in Group 3 of the Schimfaden Westhaus classification.

In cases of villous tumor there is usually a long history of an especially copious and annoying discharge of mucus such that the patient has frequently been treated for colitis. As a rule the lesion is situated low in the rectum.

Because of the tendency toward malignant degeneration, the treatment should always be radical as in carcinoma. (GOWELL) CLAUDE F. DIXON, M.D.

Handley W. B. Paralytic Ileus in Acute Appendicitis. *Proc Roy Soc Med Lond* 1935, 29, 43.

Pentonic ileus complicating acute appendicitis is not a common condition. It becomes extremely serious if it is not recognized early and dealt with properly. In the author's opinion, jejunostomy, which at present seems to be the operation of general choice, is not the solution of the problem. Medical measures must not be continued too long. Continuous gastric aspiration by means of the endwelling catheter is often of great value.

Pentonic ileus is rarely general even at the time of death. It begins most frequently in the pelvis and may gradually spread upward to reach the hypogastric region. In the food like invasion of the peritoneum or by from below upward, the stomach, jejunum, transverse colon, liver and diaphragm remain unaffected and unparalyzed until the patient is moribund. This fact is the key to successful treatment.

The author recognizes three stages of unaltered peritonitis: (1) pelvis peritonitis, (2) hypogastric peritonitis, and (3) the hypogastric clinical picture of the toxic type. Ileus may remain absent during the pelvic stage of peritonitis and may supervene only in the hypogastric stage. When the hypogastrum becomes distended the time for action is short. The author anastomoses a distended coil of

jejunum to the transverse colon and opens the cecum by cecostomy. Reflex occurs from the transverse colon and ascending colon to the cecostomy. Within twenty-four hours after this operative procedure free fecal discharge occurs and the abdomen becomes soft and flat. The author has performed this operation in five cases. Recovery resulted in four. In the fifth the patient recovered from the peritonitis, but died one month later of pyemia. In all of these cases there was an intense and apparently hopeless streptococcal peritonitis with obstruction which failed to respond to medical treatment.

JOHN W. NIXON, M.D.

Simard, L. C.: On the Frequency of Nervous Lesions of the Vermiform Appendix: "Neuro-Appendicopathy." *Cervical M J* Jan 1935, 33, 318.

Simard made careful microscopic study of all the appendices removed at the Notre Dame Hospital, Montreal, during the five year period from 1927 to 1931. The following stains were used: hematoxylin, erythrocin, and saffron for routine staining, and methanohematoxylin or fuchsin-amine blue as indicated. The nervous conditions discovered included mucosal nerve hyperplasia containing numerous argentaffin cells, mucosal neuromas, axial neuromas, and mesoneuritic hyperplasia.

Nervous lesions were found in 51.77 per cent of the appendices removed in cases of chronic appendicitis, but in only 9.37 per cent of those removed in cases of acute appendicitis. In cases of obliterated appendices the incidence of neuromas was 75.35 per cent.

Clinicians in general seem to have remained indifferent to these pathological lesions which Simard thinks are one of the most important causes of clinical signs and symptoms referable to the right iliac fossa.

Simard accepts Mamon's theory of the cause of nervous lesions in the appendix. According to this theory, the cells at the tip of the Lieberkuhn glands multiply and penetrate the nerves of the perigastric plexus. They then form a bud which separates and becomes loaded with argentaffin cells. Hyperplasia of the nerves follows, and neuroma is formed. Simple neuroma may be seen in the axis of spinal and/or obliterated appendices, but are frequently described incorrectly as cicatricial tissue.

LARA LARSEN, M.D.

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

Boult M. and Oudet J. Several Factors in the Differential Diagnosis Between Intermittent and Obstructive of the Common Duct and Intermittent Due to Hepatitis. *Archives Françaises de Médecine* 1935, 10, 103.

In this article the authors make no attempt to distinguish between jaundice due to cholecystitis

SURGERY OF THE ABDOMEN

and cholangitis, that due to lithiasis, and that due to cancer of the pancreas. They group them together as obstructive and likely to require surgical interference or duodenal drainage. Jaundice due to hepatitis of toxic or infectious origin is amenable only to purely medical treatment.

After studying a large number of cases of icterus, the authors conclude that the size of the liver, disturbance of glycogen function, disturbance of water metabolism, and the level of retention of bilirubin and bile salts are the four particularly important factors to be considered in the differential diagnosis between the two types of icterus.

The increase in the size of the liver is very marked when the common duct is obstructed. The degree of enlargement is proportional to the icterus. As soon as the obstruction is relieved, the liver decreases in size with extreme rapidity. In the early stages of the obstruction the urinary output and the level of galactose in the urine are essentially normal, while the bile pigments and salts increase parallel with each other. Later, galactosuria and diuresis become increasingly severe.

In hepatitis the size of the liver is increased very little or not at all throughout the course of the jaundice. In the early stages, galactosuria and diuresis are marked while both the bile pigments and salts are retained in abundance. Later, the diuresis improves rapidly, but the increased output of galactose is diminished less rapidly and the bile salts in the blood stream decrease much more rapidly than the pigments.

MARSH WILLIAM POOLE, M D

Gagliardi, C Experimental Studies on the Relationships Between Hepatitis and Cholecystitis (Ricerche sperimentali sui rapporti tra epatite e colecistite) *Clin chir*, 1935, 11 831

Although hepatitis and cholecystitis commonly exist together, their relationships to each other and especially the pathway along which the infection spreads are not yet well understood. In this article Gagliardi reports experiments which he carried out on animals to clear up some of the problems.

According to the various theories held at the present time, infection enters the liver and bile passages (1) by way of the blood stream, (2) by way of the bile passages, (3) by way of the lymphatics, or (4) by contiguity from the gall bladder to the liver and vice versa.

Gagliardi cites particularly the work of Wilkie who, in 1928, concluded that intramural lesions of the gall bladder precede lesions in the liver and that infection of the gall bladder is blood borne. These conclusions are in disagreement with those of Graham, Petermann, and Priest. Gagliardi repeated the work of these investigators with slight modifications.

His experiments were carried out on adult rabbits. In the first group he injected lithiocarmine and streptococci of low virulence into the gall bladder and the superior mesenteric vein respectively, and in

a subgroup a culture of streptococci without coloring material into the superior mesenteric vein. He selected the superior mesenteric vein in order to avoid the portal vein directly. Graham, Petermann, and Priest used this technique, but they sacrificed their animals soon after the operation, whereas Gagliardi attempted to produce chronic lesions.

In the second, third, and fourth groups of experiments, Gagliardi repeated the experiments of Wilkie with slight modifications.

In a fifth group he injected streptococci into the gall bladder both with and without ligation of the cystic duct.

He presents a series of typical photomicrographs showing the changes encountered and supplements them with brief protocols of the experiments. He found that the endovenous inoculation of small numbers of bacteria produced hepatic lesions while larger and more numerous doses produced changes in the gall bladder. Therefore, under the conditions of the experiments, hepatitis can occur without cholecystitis, but cholecystitis cannot occur without hepatitis.

To date, Gagliardi's observations agree only partly with the findings of Wilkie. More extensive work which he will publish with Pettinari may give more conclusive information.

Gagliardi concludes that the liver has much greater bactericidal activity than the gall bladder. Therefore, bacteria introduced into the circulation collect in the liver and produce severe lesions in that organ. Gall-bladder lesions are produced only after severe or repeated infection.

EUGENE T LEDDY, M D

Held, I W Gall-Bladder Disease with Atypical Symptoms, Including Biliary Dyskinesia *Med Clin North Am*, 1935, 19 649

The author classifies the atypical symptoms of gall-bladder disease as follows:

- 1 Extra-abdominal symptoms only (a) shoulder pain, (b) vertigo, (c) cardiospasm, (d) angina pectoris, and (e) arrhythmia.
- 2 Intra-abdominal symptoms pointing conspicuously away from the gall bladder (a) Gastric—secretory, sensory and motor, and (b) Colonic—secretory, sensory and motor.
- 3 Predominant symptoms of chronic pancreatic disease.
- 4 Metabolic disturbances.
- 5 Symptoms of general infection (cholangitis and cholecystitis lenta).
- 6 Functional disturbances without demonstrable pathological changes in the gall bladder (a) disturbances of biliary secretion, (b) disturbances of biliary absorption, and (c) disturbances of motility (dyskinesia).

Held discusses the manner in which gall-bladder disease masquerades under these various symptoms and presents illustrative cases.

Shoulder pain in gall bladder disease is attributed to phrenic nerve irritation and is a true neuralgia.

Westphal's sign is the presence of tenderness elicited by slight pressure over the right humeroclavicular joint. Vertigo with accompanying nausea and vomiting in gall-bladder disease is explained on the basis of reflex irritation of the vestibular branch of the vagus nerve.

In two cases of cardiospasm the symptoms were entirely relieved following the removal of a pathological gall bladder. The most important controlling factor in the causation of cardiospasm was a reflex disturbance in the balance of the sympathetic nerves innervating the esophagus.

In a large group of cases, symptoms of angina pectoris which may sometimes simulate coronary thromboses are outstanding, the gall-bladder symptoms being entirely in the background. According to one of the two theories advanced to explain these attacks there is an associated disease, if only of minor degree, in the coronary vessels that is activated by gall bladder infection. According to the other explanation, which is more plausible, there is a disturbance in the viscerosensory reflex. Irritation of the spinal nerve due to disease in the gall bladder is carried to the sensory plexus supplying the aorta and the coronary vessels, producing the pain of angina pectoris. Hild quotes Head as follows: "When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility the pain produced is felt in the part of higher sensibility." Cardiac arrhythmia may be explained on the basis of gall-bladder infection affecting a locus minoris resistencie in the innervation of the heart or the mechanism of conductivity.

Gastric secretory disturbances may be either hyperacidity or hypo-acidity and are reflex in nature. As a rule the gastric acidity is normal in gall bladder disease. If it is disturbed the tendency is usually toward hypo-acidity. It is not the degree of acidity that is responsible for the symptoms, but the associated hyperesthesia of the mucous membrane. If the latter is prolonged, the patient becomes a gastric hypochondriac. Gastric motor disturbances due to gall-bladder disease are generally manifested by delay of emptying due to pylorospasm. Gastric atony is not a factor. In a small percentage of cases there may be hastened emptying. Gastric pain due to pylorospasm incident to gall-bladder disease is effectively relieved by atropine.

Secretory and sensory changes in the colon resulting from gall bladder disease usually occur acutely, and are manifested chiefly by vague abdominal discomfort, anorexia, constipation, reflex nausea and vomiting, and the appearance of a large amount of mucus in the stools. This mucous colitis, which is usually considered a neuropathic disease may be regarded as an allergic phenomenon when it occurs in the presence of gall bladder disease. There are records of cases in which the syndrome was cured by the removal of a diseased gall bladder. Colonic motor disturbance is usually manifested by severe constipation of a spastic nature. The colonic symptoms

may be sufficiently severe to lead a diagnosis of proctitis with functional constipation, the gall-bladder disease being entirely overlooked.

Chronic co-affection of the pancreas is present in from 10 to 30 per cent of cases of gall bladder disease, but because of the great functional reserve of the pancreas it seldom causes symptoms. The diagnosis may be confirmed by determining a marked diminution of pancreatic ferment in the duodenal contents and the stools. Disturbances of carbohydrate metabolism may accompany gall-bladder disease. The author believes that removal of the gall bladder has frequently prevented the development of acute hemorrhagic pancreatitis.

Cases of biliary disease may occasionally present symptoms of general infection and septicemia (cholelangitis and cholecystitis lenta). *Streptococcus viridans* may be isolated from the biliary drainage. The treatment is cholecystectomy and drainage of the gall bladder.

There is a large group of cases in which the symptoms point to the biliary tract, but at operation no pathological changes can be demonstrated. The realization that functional disturbances of the biliary tract may give rise to severe symptoms is largely the result of physiological studies by Westphal and Ivy. Disturbances of function may be secretory, absorptive or motor. Disturbances of secretion may be evidenced by an excessive secretion of mucus which may plug the cystic duct and cause hydrops of the gall bladder. Disturbances of absorption of the bile by the wall of the gall bladder may be due to chemical changes in the bile resulting in the precipitation of bilirubin crystals with the formation of calculi.

The conception of biliary dyskinesia was developed by Aschoff and Bachmeyer in 1909, although Krusenbergs in 1903 had reported a case of gall-bladder colic in which neither stone nor infection could be demonstrated. Meitzer, applying the law of contrary innervation to the gall bladder, concluded that contraction of the gall bladder causes relaxation of the sphincter of Oddi, and suggested the use of sodium sulphate to relax the sphincter and empty the gall bladder. This was elaborated by Lyon who developed the Lyon-Meitzer method of diagnosis and treatment of gall bladder disease.

The animal experiments carried out by Westphal showed that biliary dyskinesia is purely functional and due to a disturbance of the sympathetic nerves controlling the motor function of the gall bladder, the anterior portion of the sphincter of Oddi, and the papilla of Vater. In the human being, Ivy and Sondheim have experimentally demonstrated coordination between contractility of the gall bladder and spasm of the sphincter of Oddi.

The author has found that functional disorders of the biliary tract may exist for a long time before producing any organic changes or may never bring them about. The dyskinesias are divided into the atonic type due to failure of the gall bladder to contract and the hypertonic type which is due to the contraction of the gall bladder against a spastic

sphincter Treatment of the atonic type is directed toward stimulation of gall bladder contraction by pituitrin and the use of tincture of belladonna or magnesium sulphate to relax the sphincter In hypertonic dyskinesia magnesium sulphate (50 c.c. of a 25 per cent solution) should be introduced by duodenal tube Dilute nitrohydrochloric acid may bring about gall bladder contraction by stimulating the elaboration of cholecystokinins

Every attempt should be made to rule out organic gall bladder disease before treatment of a functional disorder is begun If biliary dyskinesia is the result of some other intra-abdominal condition, the treatment should be directed toward the original disease The gall bladder should not be removed unless organic disease is added to the functional disorder

LOUIS SPERLING, M.D.

Evangelisti, T. Carcinomas of the Pancreas with the Island Type of Cells (Sui carcinomi pancreatici a cellule di tipo insulare) *Policlin*, Rome, 1935, 42 scz chir 384

The author reports a case of carcinoma of the tail of the pancreas in a man aged sixty five years As the patient was admitted to the clinic only shortly before death, detailed clinical studies were impossible Autopsy revealed the carcinoma of the tail of the pancreas with metastases to the omentum and liver Histological studies of the tumor showed it to be composed of cells that were morphologically similar to the cells of the islands of Langerhans The author states that certain endocrine tumors of the pancreas may not be associated with the clinical manifestations of hyperinsulinism if their cells are not differentiated

PETER A. ROSI, M.D.

MISCELLANEOUS

Wildegans, H. Internal Abdominal Hernias—with the Exception of Diaphragmatic Hernias (Die inneren Bauchbrüche—mit Ausnahme der Zwerchfellbrüche) *Ergeb. d. Chir*, 1935, 28 237

The author reviews the literature on internal abdominal hernias with regard to their anatomical relations and their surgical treatment and presents an inclusive bibliography at the beginning of the article Internal abdominal hernias include all hernias in the abdominal cavity occurring in preformed peritoneal pockets or as the result of developmental disturbances A distinction is made between the so-called small and large internal hernias The small internal hernias are

1 Ileocecal hernias These are extremely rare although peritoneal pockets are found relatively frequently in the ileocecal region Their course is usually characterized by repeated attacks of pain in the appendiceal area which suddenly lead to manifestations of strangulation demanding operation When operation is performed early the prognosis is generally good

2 Internal supravescical hernias These are to be divided into the interligamentary (true median)

hernias and the false median hernias The former are the more common The development of supravescical hernias is favored by a deeper fold formation in the region of the medial and lateral umbilical plicae The hernias usually come to clinical observation only when they are strangulated After the occurrence of strangulation severe bladder symptoms may develop suddenly When there are signs of intestinal obstruction the treatment must be surgical

3 Intersigmoid hernias in the recessus intersigmoideus These are observed frequently, in contrast to the first two forms In the great majority of the cases, symptoms of acute intestinal obstruction develop As a rule only a presumptive diagnosis can be made The prognosis depends on how soon operation is performed

The large internal abdominal hernias are

1 Hernias of the omental bursa These may develop in various ways In general entrance of omentum or loops of intestine through the foramen of Winslow is uncommon because the opening is well protected As a rule, the clinical manifestations are very indefinite and consist of symptoms of chronic obstruction or acute ileus A tense bulging above or below the stomach may simulate a pancreatic cyst The intestinal loops may escape from the bursa through the lesser omentum or the gastrocolic ligament and return to the free peritoneal cavity over the stomach or transverse colon They may enter the bursa through the mesocolon in addition to the foramen of Winslow The defects in the mesocolon may be congenital or inflammatory There may also be pockets Furthermore, loops of intestine may insinuate themselves into the omental pouch between the layers of the greater omentum The diagnosis of this type of hernia has not yet been made before operation or autopsy

2 Hernias of the duodenojejunal pocket (Treitz) These are relatively frequent They are usually considered to be acquired in postfetal life and may develop during the first months after birth They present great diagnostic difficulties Often they are first found at autopsy, having caused no symptoms If a circumscribed, spherical cyst-like swelling which is somewhat movable, is found in the mesogastrium, and tympanic and intestinal sounds are heard, the suspicion of a Treitz hernia is justified Roentgen examination may disclose gastroduodenal stasis Because of the close relationship of the sac to the vessels and its frequently considerable size, radical removal of the sac is usually impossible

3 Right mesentericoparietal hernias In these hernias, in contrast to the Treitz hernias in which the opening is always toward the left, the opening is toward the right and the development of the sac is chiefly in the right and middle regions of the abdomen Other special characteristics of right mesentericoparietal hernias are the adhesion of a larger or smaller portion of the jejunum to the posterior abdominal wall and the coursing of the superior mesenteric or ileocolic artery in the anterior

margin of the hernial opening. The sac usually contains the entire small bowel. The symptoms of these hernias are as indefinite as those of the Treitz hernias. For operative liberation of the hernial contents it is advisable to throw back the cecum and ascending colon from right to left.

The article contains twenty-one illustrations.

(COLUMBIA) LEO M. ZIESSERMAN, M. D.

Maschiostra, R. L. and Chiles, R. V.: Subphrenic Abscesses (Abscess subfrénico). *Rev. Méd.-Quirúrg. de São Paulo*, 1935 3 819

This article presents a systematic and comprehensive discussion of subphrenic abscesses, a review of the recent literature and complete reports of seven cases. The classification which the authors consider the most practical is suprahepatic abscesses (right and left) subhepatic (anterior posterior or in the lesser peritoneal cavity) and retroperitoneal abscesses. They believe that a serous pleural exudate is a usual accompaniment of subphrenic abscesses even in an early stage and does not necessarily imply a late diagnosis. They regard the induction of pneumoperitoneum for diagnosis as unjustifiable, but discuss at length the importance of roentgen exam-

ination for diagnosis and the injection of lipiodol after evacuation of the abscess for study of the relationships of the cavity. They emphasize particularly the finding of bile mixed with the pus since as judged from the literature, this feature has been neglected and the study of biliary peritonitis and pyobiliary abscesses is still undeveloped. For right and left superior and inferior subdiaphragmatic abscesses they have found Ochsner's anterior extraperitoneal approach to be best.

As all of the cases they report were those of women, the incidence of hepatic and biliary lesions was unusually high as compared with that of gastrointestinal lesions. In two cases the subphrenic abscess was the result of cholecystitis and in one case each of multiple suppurating hydatid cysts of the liver, appendicitis, and perforated gastric ulcer. In one case its origin could not be determined. In five cases the abscess followed an operation. The interval between the operation and the appearance of the symptoms varied from five to thirty-five days. Two of the abscesses were right superior, three were subhepatic, and one was retroperitoneal. In one case a right and left superior abscess were found. There were three deaths.

M. E. MOORE, M. D.

GYNECOLOGY

UTERUS

Hamant, A., and Thomas, C Hysteromucography (L'hystéro-mucographie) *Rev franç de gynec et d'obst*, 1935, 30 771

Hysteromucography is a new roentgenological method for study of the uterine cavity. Before the X-ray exposure, the uterine mucosa is covered with a fine coating of a radio-opaque substance (lipiodol or, preferably, thorium oxide) which is injected into the uterine cavity. Since, in the injection of this substance the avoidance of pressure is important, the authors insert two rubber cannulas into the uterine cavity after dilating the cervix. The liquid is then injected into one cannula and allowed to flow back immediately through the other. After the injection the uterus is massaged by bimanual palpation to express excess fluid which did not escape through the cannula. To obtain a shadow of the endometrium on the anterior wall of the uterus the roentgenogram is taken with the patient lying face downward. The posterior wall is shown when the patient lies on her back.

The authors have never noted any complications following this procedure. Its sole contra-indication is pregnancy. It is indicated chiefly in cases in which it is desired to obtain information concerning the uterine cavity and mucosa before operation. Unlike the usual hysterosalpingography technique, this method does not distort the uterine cavity by intra-uterine fluid pressure. It is useful especially in uterine malformations. **HAROLD C. MACK, M.D.**

Counseller, V. S., and Collins, D. C. Tuberculosis of the Cervix Uteri. *Am J Obst & Gynec*, 1935, 30 830

Tuberculosis of the cervix uteri is very rare. After partially reviewing the literature on the condition the authors report the complete study of a case seen at the Mayo Clinic in the hope that it may assist in the prompt recognition and early institution of adequate treatment.

The first to describe tuberculous salpingitis and tuberculous endometritis was Morgagni, in 1744. In 1923-1904 John B. Murphy exhaustively reviewed the subject and brought the data up to date. His contributions to this field were thorough, little has been added to knowledge since his publications.

Greenberg, in a review of the literature in 1920, reported that of a series of 897 cases of pelvic tuberculosis, tuberculosis of the uterine cervix was found in 37 (4.2 per cent). In the next eleven years, Norris, Wharton, Spalding, Neuwirth, Culbertson, Daniel, Schmidt, Pavlovsky, Bengolea and Pavlovsky, Gupta, Douglas and Rudlon, White, Bishop, Harris, Dworzak, and Bonnet and Builhard made

notable contributions on the condition. David studied 1,200 cervixes which had been removed surgically. Of these, 777 showed evidence of inflammation, but the inflammation was tuberculous in only 1. On the other hand, 25 (5.7 per cent) of this group were carcinomatous. In the last two years noteworthy articles on this subject have been published by Sasaki, Davis, and Watson.

Bevea found that in 63 per cent of the cases reported in the literature the patients were between twenty and forty years of age. In the 108 cases which the authors found in the literature this percentage was increased to 73.5.

In at least 85 per cent of cases tuberculosis of the cervix is secondary to tuberculosis elsewhere in the body, as in the fallopian tubes, urinary tract, gastrointestinal tract, or the lungs. Pregnancy and marriage are 2 prominent contributing factors in the onset of the disease. The criteria for primary tuberculosis of the cervix demand that it be the only tuberculous infection in the body. Hence, as Murphy has demonstrated, it must usually be an ascending infection which has been derived from the vagina or vulva, or more commonly from a tuberculous partner at coitus. Murphy said that Klebs and Scanzoni absolutely denied the possibility of the occurrence of such an infection. The ease with which this disease may simulate carcinoma of the cervix is well known.

The 4 chief types of tuberculosis of the cervix uteri, named in the order of their frequency, are the ulcerative, the papillary, the milary, and the bacillary catarrhal. Thus, the gross picture of the cervical lesion may vary. The lesion is usually ulcerated. Its edges are either well defined or undermined, and are surrounded by either normal tissue or tubercles. The neighboring portions of the vagina may be involved, and tubercles may form. Bishop said that the earliest lesion is a polypoid process and that this is soon followed by ulceration which may develop into a huge ulcer with ragged undermined edges. On the other hand, the tuberculous infection may be rather deep in the substance of the cervix and present little or no ulceration or papillomatous formation on the surface. A rare fibrosing type is occasionally seen. Secondary infection is commonly superimposed on these lesions, and more or less cervical bleeding or even hemorrhage frequently occurs.

Microscopically, the typical formation of tubercles is not commonly seen. Often, atypical collections of epithelioid and lymphocytic cells without giant cells are the only criteria upon which the microscopic diagnosis can be made. Staining the tissue or smears from the tissue with acid-fast stains often will fail to reveal typical tubercle bacilli. Under

such circumstances, inoculation of guinea pigs is of great value in establishing the diagnosis.

The only positive method of arriving at the diagnosis is to perform a biopsy and have a competent pathologist examine a specimen of the suspicious area of the cervix. The specimen of tissue must be of sufficient size to allow the pathologist to make a diagnosis. It should include all constituents of the cervix. Biopsy will in no way injure the patient. The differential diagnosis must distinguish this disease from hypertrophy with eversion and erosion of the cervix, myomatous or polypoid changes, actinomycosis, syphilis, gonorrhea, sarcoma and carcinoma.

The treatment should be surgical whenever possible and of a radical type if the condition of the patient will permit and other factors are favorable. The contra-indications to surgical treatment are advanced local tuberculous lesions with involvement of neighboring structures, such as the rectum or bladder, tuberculous salpingitis, active tuberculosis elsewhere in the body, marked secondary infection, senility and cardiovascular disease.

Bonney V. The Treatment of Carcinoma of the Cervix by Wertheim's Operation. *Am J Obst. & Gynec.* 1933 30: 85

The author has performed 433 Wertheim operations. Except in the cases of women who were very old or the subjects of advanced cardiac, pulmonary renal, or other disease, he operated whenever there was any chance of completing the operation. This principle has had the disadvantage of raising both the operative mortality and the incidence of recurrence. On the other hand, it has saved lives which otherwise would have been lost. Bonney prevents results which he believes represent the limit to which surgery alone can go in the treatment of carcinoma of the cervix. He has not employed pre-operative irradiation, but a few of his earlier cases were referred to him as having been "rendered operable" by radium. The operations were exceedingly difficult, and none of the patients survived 5 years. Bonney has used postoperative irradiation only in cases in which it was impossible to remove carcinomatous glands from the iliac vessels. In not one did the patient survive five years.

If the patients he cannot be traced and those who died of other disease within five years after the operation are reckoned as having died of recurrence the incidence of freedom from recurrence for five years after operation was 34.6 per cent. If these patients are excluded from the calculation, the percentage is 25.6. With regard to the incidence of freedom from recurrence for ten years, the figures may be expressed briefly by saying that on the five year basis the operation cures 1 of every 5 patients operated upon and 1 of every 4 patients seen while on the ten year basis it cures 1 of every 5 patients operated upon and 1 of every 3 patients seen.

In the reviewed cases the incidence of operability was 63 per cent. Therefore 37 per cent of the cases

remained to be treated by irradiation. Five of the 37 patients, i. e., 5 per cent of the 100 originally seen, may be dismissed from consideration as beyond the reach of any measure. Of the 32 remaining, a five-year cure can be obtained by irradiation in a certain proportion. According to radiological statistics, this is about 5 and this number must be added to the number of five year cures obtained by operation.

EDWARD L. LINTH, CORVALL, M D

ADRENAL AND PERIUTERINE CONDITIONS

Gelet, S. H.: The Histogenesis of Certain Ovarian Tumors and Their Biological Effects. *Am J Obst. & Gynec.* 1933 30: 650

The author describes four types of ovarian tumor—the granulosa-cell tumor, the theca-cell tumor, the arrhenoblastoma, and the dysgerminoma.

The granulosa-cell tumor arises from stromal granulosa-cell forerunners in the ovary. It has a definite secretory function. It stores or produces the estrogenic hormone. It affects the host by exaggerating certain aspects of the female physiology. It causes an increase in the amount and frequency of uterine bleeding. It stimulates the growth of the breasts and uterus and causes hyperplasia of the endometrium, in other words, over-feminization.

The theca-cell tumor arises from the forerunners of the theca (internal cells). In its biological aspect it is similar to the granulosa-cell tumor, but is commonly found in the postmenopausal period and differs from the granulosa-cell tumors in other respects to a degree which warrants its being regarded as distinct from the latter.

The arrhenoblastoma is a neoplasm which arises from male-directed elements which have remained quiescent in the ovary or, as Pick believes, from the male portion of an ovotestis. It presumably contains a male sex hormone although this as yet has not been proved. It affects the host by causing a defeminization or a masculinization with development of the male hair type and a male gait, voice and larynx. Loss of the female breast contour, loss of menstruation, and atrophy of the genitalia also occur.

The dysgerminoma arises from sexer cells of germinal epithelial origin, i. e. dysgerminal elements. It has no secretory function and no pathophysiological effect on the host, but is found often in individuals with defective gonads and atypical somatic development. **LOWARD L. CORVALL, M D**

MISCELLANEOUS

Klafter, E.: Intermittent and Prophylactic Treatment of Menorrhagia and Metrorrhagia with Isonitro (the intermittotherapie und prophylaktische Eisendibenzolbehandlung der Meno- und Metrorrhagie). *Zentralbl f Gynec.* 1933 p. 51

Observing that in a special treatment with isonic, especially in the presence of erosions or ulcers, there may be a change of several days in the time of menstruation, the author was led to attempt 1

influence cases of menorrhagia by insulin treatment. At first he treated in this way chiefly women who were suffering from polymenorrhea, but later he investigated the effect of insulin on hypermenorrhea, juvenile and preclimacteric metropathia hemorrhagica, and bleeding due to myomas and adnexal disease. The favorable results of the insulin treatment in these different types of hemorrhage are shown by numerous illustrative case reports. The results were particularly good in polymenorrhea, hypermenorrhea, and juvenile metropathia hemorrhagica. In a series of cases of preclimacteric metropathia hemorrhagica and cases of functional hemorrhage without other findings, i. e., hemorrhages occurring in women who were normal or above normal in weight, they were not satisfactory.

The group of women who reacted to the treatment well presented certain clinical characteristics, namely, marked emaciation, disturbances of the liver or gastro-intestinal tract, delayed return of the blood sugar to normal after a glucose-tolerance test, and a lowering of the basal metabolism in the presence of a normal or nearly normal specific dynamic protein quotient or somewhat increased blood-sugar values during fasting. With an increase in the body weight and improvement in the general condition under the insulin treatment the menstrual periods became regular and normal. However, in the presence of very severe emaciation insulin treatment is not advisable as under such conditions even small doses of insulin may bring about dangerous hypoglycemia.

Another group of women who react well to insulin treatment—those with polymenorrhea and hypermenorrhea or continuous bleeding—includes women who will develop diabetes in the course of time and in whom the menstrual disturbances preceding the development of diabetes are favorably influenced by insulin. Occasionally also it is possible to obtain a good result from insulin treatment in cases of ovarian insufficiency based on a pluriglandular disturbance. The stimulating effect of small doses of insulin on the function of the ovaries is next in importance to their effect on the carbohydrate metabolism.

In the preclimacteric form of metropathia hemorrhagica a favorable effect was seldom obtained. According to the author's experience a favorable effect is obtained chiefly in cases in which there is a functional disturbance of the islands of Langerhans in the sense of a hypofunction. Characteristic of such cases is marked emaciation. Reacting favorably in this group are cases of gall-bladder disease following gastric or duodenal diseases which not infrequently are complicated by pancreatic disease. On the other hand, hemorrhages due to inflammation are usually refractory.

The mechanism of action of insulin in the menstrual disturbances cited is to be attributed chiefly to its effect on the carbohydrate metabolism and on the endocrine glands, especially the ovaries.

With regard to the relationship between the ovaries and the islands of Langerhans and insulin

the author reports a series of experiments which he carried out to determine whether insulin treatment may be followed by disturbances or injuries of ovarian function. Large and small doses of insulin were injected into sexually mature mice over a long period of time. When small doses of insulin were given the maturation of the follicles was hastened. The estrus phase was frequently lengthened and the number of mature and maturing follicles was increased. When doses of medium size were given, moderate luteinization was found in addition to a large number of growing follicles. When large doses were administered there was, in addition to marked luteinization, a distinct injury to the follicular apparatus with slowing of maturation of the follicles and a tendency toward cystic atresia.

The influence of insulin on the uterine muscle was studied in guinea pigs. It was found to be, to a certain degree, analogous to the effect of corpus luteum preparations, especially in that it reduced the activity of the muscle.

With regard to the dosage and the choice of time for the insulin treatment the author differs from other writers on the subject. In cases of amenorrhea 10 units of insulin are given twice daily for four consecutive days and this dosage is repeated after an interval of three days. The treatment is continued until the desired effect is obtained. The dosage is varied somewhat according to the patient's age, body weight, and blood sugar. In the course of the treatment the dose of insulin may be increased to from 20 to 40 units daily. In cases of menorrhagia and severe cases of polymenorrhea and hypermenorrhea the so-called prophylactic treatment is given, the administration of insulin being begun five days before the expected time of the menstrual period and continued until the bleeding starts. By repeating the described treatment two or three times it has been possible to render menstruation normal. In the majority of the cases the results persisted for from five to ten months, but at the end of that time repetition of the treatment was necessary. A single series of treatments was sufficient in only a few cases, in the majority, intermittent treatment was required. In cases of marked emaciation, diarrhea, and exhaustion special care must be taken to prevent hypoglycemic reactions. After the administration of the insulin, sugar should be given in large amounts, sometimes by the intravenous injection of 20 c cm of a 40 per cent glucose solution. During the insulin treatment a diet rich in carbohydrates and including vegetables and fruits should be given for several weeks. Fat and protein should be allowed in only moderate amounts.

(ALSELMINO) WILLIAM C. BECK, M. D.

Kadlečík, S. The Results of Treatment of Gynecological Hemorrhages (Behandlungserfolge gynäkologischer Blutungen). *Rozhl. Chir. a Gynaek. Č. gynaek.*, 1935, 14, 128.

The author reviews more than 10,052 cases of gynecological hemorrhage which were treated at the

Premburg Clinic in the period from 1928 to 1934. The material is divided according to the anatomical findings as follows:

Abortion, 5,273 cases. Of these 478 were treated conservatively and 175 especially from the very beginning. In 3,023 curettage was done, and in 1,146 manual evacuation. Five hundred and ninety-one of the cases were febrile. Active treatment was given only when no signs of inflammation were found in the uterine wall or its surroundings. In the 249 cases of this type conservative treatment was given until the temperature subsided, careful curettage then being done.

Hydatid mole, 14 cases. Curettage was performed in 5 and hysterectomy in 1.

Choriocarcinoma, 3 cases. All of these terminated in death after a shorter or longer time.

Fibromyoma, 579 cases. Acyclic bleeding due to adnexal complications occurred in 105. The operations were as conservative as possible. In 2 cases carcinoma developed in the amputation stump. There were 23 deaths.

Operable genital carcinoma, 396 cases, uterine polyps, 17 cases and cervical polyps, 83 cases. Acyclic bleeding occurred in 48 cases. After ablation, the acyclic bleeding recurred in 11 cases because of diffuse polyps of the uterus or fibromyoma. In 5 of these cases a radical operation was performed.

Endometriosis, 231 cases. Curettage was done after successful conservative therapy. Cure was obtained in 85 cases, improvement in 35 and no change in 11.

Rupture of the cervix, 17 cases. Operation was performed immediately.

Endometritis following abortion, 98 cases, benign erosions, 117 cases. Curettage resulted in cure in all of the latter except 59 in which there was a complicating perineal tear and a plastic operation was necessary.

Injuries of the vagina, 23 cases. In 12 cases the lesion was due to coitus, and in 11 to an accident. All were treated successfully by surgery.

Infantile uterus, 160 cases. In 3 there was hypermenorrhoea. At first these were treated with ovarian tablets and later with follicular hormone.

Mobile retroflexion of the uterus, 468 cases. In 45, the condition was associated with hypermenorrhoea. The position of the uterus was corrected and roborant therapy was given.

Descent of the uterus, 325 cases. Hypermenorrhoea occurred in 25. These were treated successfully in the same manner as the cases of the preceding group.

Total enteroptosis, 120 cases. Roborant therapy was given in the 25 cases with hypermenorrhoea, but not with as successful results as were obtained in the groups previously mentioned.

Cystic glandular hyperplasia, 234 cases. Sixteen of these were cases of adenocarcinoma and 37 cases of severe endometritis. In the 186 uncomplicated cases curettage was performed with good results. In

39 cases the condition recurred. Recently good results have been obtained in such cases with hormonal therapy.

Metrorrhagia juvenilis, 25 cases. In 7 cases, which were severe, curettage was done. Recently hormonal therapy has yielded good results in this condition.

Hemorrhage due to disease of other organs (cardiac failure, pulmonary tuberculosis, nephritis, marasmus) 75 cases.

Seven hundred and thirty-five cases of hemorrhage or hypermenorrhoea were treated conservatively. The hemorrhage was not due to anatomical changes. Four hundred and twelve of these cases, the majority those of young women, were treated conservatively while most of the cases of older women (women over forty years of age) were treated by curettage. In 118 the condition was improved. In 12 cases, hysterectomy was necessary.

In 768 cases of acute inflammation calcium was administered in addition to the usual therapy (the use of drugs to cause uterine contraction). Especially at the beginning this served to allay the cradation.

In 348 cases of chronic inflammation conservative treatment was given chiefly during the stage of exacerbation. However in 94 cases operation was performed later. In most of these salpingectomy was done. (VITAKOVIC). HARRY A. SALERMAN, M.D.

Stoeckel: Effective Radical Operations for Genital Carcinomata with Involvement of the Rectum (Eingriffe bei Radikaloperationen bei Genitalcarcinomen mit Beteiligung des Rectums). Zisch f. Geburtsh. Gynak. 235 158

The author reports two cases of genital carcinomata involving the rectum.

The first was a case of vaginal carcinomata. Stoeckel remembers six similar cases—two operated upon in Kiel and four in Berlin. All of the patients withstood the operation well. Two of those operated upon in Berlin are well at the present time. One developed several recurrences in the vagina and vulva two and a half years after the operation and is now obviously moribund although, to date, repeated radium treatments have been followed by improvement.

The first case reported in this article is the fourth of the Berlin series. The patient was a single woman thirty years of age. As her general condition was good, a combined abdominal and vaginal operation was considered justifiable.

Through a laparotomy incision, removal of the iliac glands was begun and then, by the Wertheim method complete removal of the uterus and parametrial cellular tissues was done and the bladder and ureters were completely mobilized. At its junction with the sigmoid flexure the rectum was then divided between two clamps, the flexure end was sutured in place to form an iliac stoma, and the distal end with the rectum was separated from its attachments, the dissection being done close to the bony parts. Over the mobilized organs, which were placed in the small

pelvis, a roof was formed by suturing the ligamentous leaves and the bladder to the parietal peritoneum. This having been done, the abdomen was closed. Then, by Schauta's method and after two Schuchardt incisions had been made, the operation was completed, and by means of an incision around the anus the rectum and all of the genital and pararectal tissues were removed together. Closure of the large cavity resulted slowly from granulations and pressure from above. The bladder function remained good. To date, there has been no fistula formation.

The second case was that of a woman who, three and a half years after a radical vaginal operation, developed a recurrence in the form of a circle of carcinomatous nodules around the anus. Because of the deep penetration of the nodules their isolated removal with preservation of the sphincter muscle was impossible. Therefore vaginal extirpation of the rectum was done in the reverse order to that followed in the first case. In this case also the operation was begun with the formation of an iliac anus and suturing over and depression of the distal portion of the bowel. Then an incision was made around the anal region from the vagina and after two large Schuchardt incisions had been made the rectum was divided about 15 cm. above the anus so that a portion of the afferent loop remained below the artificial anus. This part was pulled down and sutured to the skin of the gluteal region. After careful hemostasis, the large wound cavity was tamponed. The bladder entered the large wound area, but elsewhere the cavity was filled by granulations. The patient is continent.

(P. CAFFIER) MATHIAS J. SEIFERT, M.D.

Rowe, A. W. **Human Infertility. A Study of 100 Matings.** *J. Obst. & Gynec. Brit. Emp.*, 1935, 42: 962.

This article deals with the results of a comprehensive clinical and laboratory study of a consecutive series of 100 infertile couples undertaken to ascertain the factors which might be regarded as causal or contributory to infertility.

Both constitutional and local impediments to fertility were minutely scrutinized. Nine of the men and

3 of the women were adjudged normal. One hundred and eighty-eight individuals presented 213 constitutional disorders of a degree worthy of record. In addition to these disorders a large number of local conditions which might have influenced fertility were found. Most of these local conditions were discovered in the females. Each union in the series presented an average of nearly 5 significant impediments to fertile mating. The principle of multiple causation is highly important, and its failure to be more generally recognized has undoubtedly played a definite part in some of the failures of the past. Another inference to be drawn is that both partners are jointly responsible for an infertile union. The major rôle played by the constitutional elements requires further emphasis. Many of these elements, notably the glandular disorders, are or may be corrected by proper therapeutic measures, a fact most pertinent to the solution of the problem. The fertility of the individual is the summation of a number of functions all maintained at normal levels coupled with complete absence of all impeding agencies either local or constitutional. Varying degrees of infertility result as one or more of these criteria fail to be realized. Some of the elements in the composite picture are of secondary importance whereas others, such as complete blockage of the male tract or the fallopian tubes or failure of spermatogenesis or oögenesis, may be competent alone to produce sterility. When partners of low fertility are united, the probability of successful impregnation and pregnancy is lowered still further whereas if each partner were mated with a partner of high fertility, the union might be fertile.

Therapy for infertility depends on the correction of all impediments which are correctable and palliation of the others. Thus the index of fertility will be raised and may finally pass the critical boundary.

Of the reviewed cases in which therapy could be and was applied, the condition was corrected in 50 per cent. With the development of more effective therapeutic measures along all indicated lines and especially in the endocrine field, a still larger proportion of successful results may be anticipated.

STANLEY C. HALL, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Barke, F J: *Amniography J Obst. & Gynec Brd Eng* 1935 4 1066

In recent years the diagnosis of placenta previa has been accomplished by roentgenography. However while there is ample evidence that this new diagnostic method is of more than experimental interest, it has so far attracted little attention. The indications for amniography may perhaps be defined by stating that if in a doubtful case of placenta previa, the history, the physical signs and other important considerations, e.g. the patient's age, parity and desire for a child, are sufficient to indicate that cesarean section is a possible mode of delivery, amniography should be performed. If it is decided that delivery shall occur by way of the vagina in any case, little or nothing is to be gained by subjecting the patient to the examination. Amniography appears to be of value chiefly as a deciding factor for or against delivery by cesarean section.

As the placenta is actually visualized, there is no difficulty in determining whether the placenta previa is central, marginal, or lateral. With such accurate information and with due regard to other circumstances, the mode of delivery should no longer be in doubt. If the diagnosis is central placenta previa, cesarean section may be performed with beneficial results to the child and with full confidence that the mother will not be exposed to unnecessary risk. If the diagnosis is lateral placenta previa, natural delivery can be awaited without undue apprehension.

CARL H. DAVIS, M.D.

Duret, F: *Thirty Years Treatment of Placenta Previa (Dreißig Jahre Placenta prævia Behandlung)* *Konst. Chir. Grenz. C. Grenz.* 1935, 14 34.

In the last thirty years 195 cases of placenta previa were observed in a total of 56,157 deliveries at the Zagreb Clinic. The incidence of the condition was therefore 1:285 per cent. In 1 case the patient arrived at the clinic in a moribund state and died before examination. Of the 194 other cases, the placenta previa was of the marginal type in 106, of the lateral type in 122, and of the central type in 66. In the majority (54) of the milder cases the membranes were ruptured artificially and hypophyseal preparations then administered. Three of the mothers died (1 of anæmia, 1 of incomplete uterine rupture, and 1 of sepsis). The corrected fetal mortality—the mortality due to infants weighing more than 5,000 gm. which were alive during the delivery but died after birth—was 50 per cent.

In 20 cases in which spontaneous delivery was awaited there was no maternal death, but the in-

fant mortality was 8.33 per cent. Colporelysis was done in 24 cases with no maternal mortality but with a fetal mortality of 33 per cent. Meturetrolysis was done 15 times. In the last 3 cases spontaneous delivery was then awaited. In 7 cases, version and extraction were done, and in 3 cases Braxton-Hicks version was done. The maternal mortality was 0 per cent and the fetal mortality 100 per cent. In 31 cases the foot was brought down, with 4 maternal deaths from sepsis and an infant mortality of 33 per cent. Braxton-Hicks version was done in 58 cases with 5 maternal deaths (1 each from anæmia, laceration of the cervix and the lower portion of the uterus, and tuberculosis of the larynx, and 3 from sepsis) and an infant mortality of 75.0 per cent. In 35 cases simple version and extraction were done with 6 maternal deaths (3 from anæmia, 1 from rupture of the cervix, and 2 from sepsis).

Cesarean section was performed in 15 cases with 3 maternal deaths from hemorrhage and no infant mortality. Supravaginal amputation was done in 4 cases—in 2 according to the method of Porro, and in 2 according to the method of Chrobak. Of the 15 conservative sections, 4 were corporeal and 11 were cervical. All of the cases in which cesarean section was performed were cases of placenta previa centralis in an elderly primipara or a woman who was very desirous of having a child. The author emphasizes that the operation should not be attempted if there is any sign of infection or a febrile reaction. He warns against too broad limits to the indications for cesarean section in placenta previa as the Braxton-Hicks procedure yields good results for the mother and he prefers it especially when the child is not viable.

(V. JANKOVSKÝ-RAJKOVÁ) WILLIAM C. BICE, M.D.

Robecchi, E. *Roentgen Pelvimetry and the Roentgen Prognosis of Delivery in Cases of Abnormal Pelvis (La pelvimetria roentgen e la prognosi radiologica del parto nei bacini viziati)* *Ginecologia*, 1935 1065

The author reviews the literature on pelvimetry and reports a number of cases in which he used the methods of Martinus and Gethmann.

By either of these methods it is possible to compute the important diameters of the inlet and outlet of the pelvis with a very negligible degree of error.

The method of Martinus, in which the spinous process of the fourth lumbar vertebra instead of the fifth is used in determining the anteroposterior diameter of the superior strait, was found to be more accurate and more simple technically than that of Gethmann. It proved also to be more suitable for determination of the important diameters of the fetal head.

Robecchi concludes that, because of the many other functional and anatomical factors involved, such as the thickness and compressibility of the soft parts, the mobility of the pelvic articulations, and the ossification and plasticity of the fetal head, determination of the various pelvic and fetal diameters is an inadequate basis for the prognosis of delivery

GEORGE C. FINOLA, M.D.

Goodall, J. R. Toxemia of Pregnancy. A Clinical and Pathological Study. *J. Am. M. Ass.*, 1935, 105: 2121

It is commonly taught that toxic pregnancies fall into 2 great categories: (1) the pre-eclamptic and (2) the nephritic. The author believes this is wrong. He maintains that there is only one toxemia of pregnancy. He states that all cases of pregnancy toxemia are potentially eclamptic, but not all of them are pre-eclamptic.

Toxemias are either acute or chronic. The chronic cases resemble the nephritic, but are not nephritic, and when nephritis or kidney damage antedates pregnancy it should be designated as nephritis complicated by pregnancy.

In acute fulminating toxic states the systems have not time to adjust themselves to the sudden development of the toxemia. As a consequence the symptoms differ as markedly as those of acute infections from those of chronic infections. On the other hand the chronic toxemias present a very protean syndrome and the reason why they rarely pass into eclampsia is that the time element allows the development of cell accommodation and increased tolerance on the part of the autonomic nervous system.

There is a group of chronic cases in which the urine may show as much as 12 gm. of albumin to the liter with or without casts. Symptoms are usually completely absent. These cases are very good risks.

There may also be similar cases having an associated elevation of the blood pressure. In these also symptoms may be totally absent. The prognosis for both the mother and the child depends more on the blood pressure than on the amount of albumin in the urine. There is grave danger to both the mother and the child.

There are also cases without symptoms except a rising blood pressure and an increasing pallor. The urine may or may not contain albumin and casts. In these cases the prognosis for the mother is doubtful and that for the child is unfavorable.

There are a few rare cases with a local general edema and a normal blood pressure. These are usually cases of twin pregnancy. The prognosis for mother and child is usually good.

In the group of cases with edema, a high blood pressure, albumin and casts in the urine, and nerve-center symptoms the prognosis for the mother and child is poor if the pregnancy is not terminated soon.

There is also a series of cases with a high blood pressure, gastro-intestinal disturbances, epigastric pain, possibly jaundice, and large amounts of albumin with casts and bile in the urine. The prog-

nosis is unfavorable. Unless the pregnancy is soon terminated, either spontaneously or artificially, the outcome will undoubtedly be serious.

Examination of the normal blood in pregnancy shows the leucocyte count to be elevated to from 10,000 to 12,000. In advanced placental disease and necrosis a definite microcytosis is found. The most important change is a lowering of the hemoglobin coefficient. This rarely begins before the fifth month, but thereafter is progressive. It is usually associated with a decrease in the gastric hydrochloric acid. The condition responds rapidly to large doses of iron, many of the symptoms, such as numbness of the forearms, muscular cramps, headaches, and neuralgias, disappearing quickly. The author believes that the incidence of toxemia would be greatly reduced by improving the quality of the blood and consequently, also, that of the cells and the function of the tissues.

Chemical studies of the blood are not of much value except in cases of true nephritis. The author believes that the cause of toxemia in pregnancy is an endocrine dysfunction. Pregnancy causes more change in the endocrine systems than in any other organs except the uterus.

The whole danger, not in relation to life but in relation to organic disease, lies in persistence of the dysfunction after the pregnancy has ceased. This persistence is almost proportionate to the duration of the dysfunction during the pregnancy.

The examination of 750 placentas demonstrated the striking fact that the placenta begins to degenerate at about the seventh month, and that a normal healthy placenta at term is very rare.

During this degeneration the placenta is much more apt to be overtaken by other disease processes. The chief pathological placental changes are chorionic sclerosis plus placentosis, hemorrhages, infarctions, and degeneration cysts.

There is a very distinct connection between placental diseases and clinical toxic pregnancy. Whether the placental disease is a sequel to the toxemia or the toxemia is a result of the placental disease is a problem of the first magnitude. There seems to be also an equally subtle connection between placentosis and the onset of labor.

If it be accepted that toxemia is the expression of a metabolic disturbance consequent upon an endocrine dysfunction, the treatment of toxemia employed in the last few years becomes rational instead of empirical. Acute toxemias have almost been eradicated by close observation of pregnant women in the prenatal period. Chronic toxemias are as numerous as ever. In the cases of multiparas with living children it is no longer justifiable to force the mother to carry on to the end of her pregnancy. The longer the toxemia lasts in pregnancy, the greater is the tendency for the signs to persist when the pregnancy is over.

Study of placental disease has taught the author that a large percentage of children enter the first stage of labor handicapped by placental disease, and that these may readily succumb in any prolongation

or major effort in the second stage, at which time the placental circulation is greatly impeded by the slowly diminishing placental vts. STANLEY C. HALL, M D

Shute, E.: Resistance to Proteolysis Found in the Blood Serum of Aborting Women. *J. Obst. & Gynec. Brit Emp* 1935 42 107

Seventy-three per cent of 44 spontaneously aborting women had blood serum showing a characteristic type of resistance to the proteolytic action of commercial trypsin. The resistance appeared to be directed against the protease fraction. The same phenomenon was noted in 8 per cent or fewer of 123 cases of normal pregnancy and self induced abortion. It is suggested that many spontaneous abortions are provoked by excess of this ability of the maternal blood to impede the proteolytic activity and hence damage the nutrition, of the embryonic trophoblast. The maternal resistance is not due to serum anti-trypsin. The occurrence of abortion in febrile disease is explained by increased maternal resistance to the growth and development of the trophoblast with a resulting unfavorable effect on the sensitive embryo. J. THORNTON WICKHAM, M D

Shute, E.: Is Estrin the Cause of the Resistance to Proteolysis Found in the Blood Serum of Aborting Women? *J. Obst. & Gynec. Brit Emp* 1935 42 1085.

The author presents evidence in support of the belief that a substance closely resembling estrin is the factor in the maternal blood serum which is responsible for resistance to proteolysis in many cases of spontaneous abortion.

The concentration or availability of this anti-proteolytic principle is greater in the placentas of women whose pregnancies terminate prematurely than in more mature placentas.

An explanation is suggested for the maternal control of invasion of the uterine wall by the placental villi in pregnancy.

In conclusion the author briefly reviews reports in the literature indicating that estrin is a major factor in the causation of labor whether it occurs prematurely or at term. CARL H. DAVIS, M D

LABOR AND ITS COMPLICATIONS

Caldwell, W. E., Moloy, H. C., and D'Esopo, D. A.: Further Studies on the Mechanism of Labor. *Am. J. Obst. & Gynec.* 1935, 30 763

In this 50-page article the authors report the findings of over 1,000 complete roentgen examinations of the pelvis and fetal head made before, during, or after labor and discuss them in conjunction with the known details of the deliveries and the findings of vaginal examination.

The investigation of the mechanism of labor substantiated the accuracy of the original anatomical description of each of the 4 parent types: the gynecoid, android, anthropoid and platypelloid. The widest transverse diameter of the inlet bears a very

important relationship to the interspaces diameters situated at a lower level in the pelvic outlet. These two diameters so closely approach the same transverse vertical plane that for practical purposes one may be considered either perpendicularly below or perpendicularly above the other as the case may be. Thus a transverse section of the pelvis through its widest transverse diameter and the ischial spines divides the pelvis into an anterior and a posterior segment. The anteroposterior diameters of each segment are termed "anterior" and "posterior" sagittal diameters for all levels.

In every pelvis the length of each diameter is maintained from inlet to outlet. For maintenance of the length of the anterior and posterior sagittal diameters of the inlet throughout the pelvis the sacrum must possess a normal curvature and inclination posteriorly while anteriorly the symphysis and pubic rami must approach closely the same parallel plane and become straight. Labor in pelvis with a forward curvature of the lower sacral region is frequently complicated by failure of the cervix to dilate and retract normally. The head, meeting the resistance of the lower sacrum and coccyx, is unable to descend far enough at the height of each contraction to cause pressure against the dilatable cervix. As a result dilatation ceases, usually with an appreciable rim of cervix around the head. The intertuberos diameter is always in front of the interspines and at a considerably lower level. Almost invariably the intertuberos diameter is wider than the interspines. When the pelvis is normal and the child is of average size, it is doubtful if the bony pelvis plays a very important rôle in the mechanism of labor. With the soft parts of the birth canal directing the fetus at each level along the optimum anatomical axis of the pelvis and through the most ample diameters, the perfection of natural labor is attained. The scanner by which the shoulders become adjusted to the shape of the pelvis is difficult to study. Stereocentograms reveal the child at rest between contractions and under these conditions it is unusual to observe any obvious tilt at the neck, irrespective of the position of the head.

In the android and flat pelvis it is important, when forceps are used for deep transverse arrest of the head, to maintain this occiput transverse position until the head has been brought to the proper level at which rotation can occur. If the occiput transverse position is maintained, descent can occur only if the pelvic walls are straight and the interspines and interspaces diameters are wide. This point is important. The presence of a narrow interspaces diameter greatly complicates the problem of rotation and descent of the transverse position.

EDNA AND LYMAN CONNELL, M D

Risberg, E.: The Significance of the Shape of the Fetal Head in the Mechanism of Labor. *J. Obst. & Gynec. Brit Emp* 1935 42 793

The author first presents a historical survey and critical discussion of the most important theories

that have been advanced in explanation of the mechanism of labor. In a study of the shape of the fetal head he found that it has a decided and characteristic asymmetry, the bulk of its mass being situated above the mento-occipital diameter. An investigation of the effect of this asymmetry on the movements of the head during labor showed that the usual mechanism can be traced to it if it is assumed that the deformability of the birth canal corresponds on the whole to that of a curved tube of a homogeneous elastic material.

Cases in which the normal internal rotation is absent are also explained if the atypical deformation of the fetal head is demonstrable.

The author believes that the shape of the fetal head is the factor chiefly determining the movements of the head during labor, and that an incomplete forward flexibility of the fetus at most may have some importance in cases of prolonged occiput-posterior position. ALBERT W. HOLMAN, M.D.

Rudolph, L. Constriction-Ring Dystocia. *J Obst & Gynec Brit Emp*, 1935, 42: 992.

The author reviews 21 cases of intra-uterine rings which came under his own observation and 350 cases reported in the literature. He states that the terminology of the condition should distinguish between the normal and the abnormal. The following terms and classifications are suggested:

1. Physiological retraction ring. As the result of the phenomenon of retraction the uterus in normal labor divides itself into an upper and a lower segment.

2. (A) The pathological retraction ring or ring of Bandl. The ring of Bandl occurs only in obstructed labor or mechanical dystocia. It is due to excessive retraction of the upper uterine segment and thinning of the lower uterine segment. Visibility of the ring through the abdominal wall is a sign of impending rupture of the uterus. The ring is not the cause of the dystocia, but rather the result of the mechanical obstruction. It is only an exaggeration of the normal physiological retraction ring, and does not cause dystocia *per se*.

(B) Constriction rings. A constriction ring is an annular contraction of the uterus which, theoretically, may occur at any level of the uterine musculature and cause dystocia *per se*. It does not change position as labor continues. A constriction ring is most likely to occur at the external or internal os or at the junction of the upper and lower uterine segments. There are 2 types of constriction rings: (1) a spasmodic, reversible constriction ring, which relaxes under the influence of anesthesia, morphine, rest, or epinephrine, and (2) a permanent, non-reversible constriction ring, which does not relax under anesthesia or the influence of drugs.

In a study of 272 cases of constriction-ring dystocia the location of the ring with respect to the fetus and symphysis pubis was as follows:

1. Around the neck of the fetus and behind the symphysis pubis in 75 per cent.

2. Around the body of the fetus and above the symphysis pubis in 14 per cent.

3. Forelying, behind the symphysis pubis, in 9 per cent.

It has been established that a constriction ring may complicate either the first or second stage of labor. In the first stage it usually prolongs labor. If it persists in the second stage, it causes the uterine contractions to be ineffective.

In many cases the ring is due to an oxytocic drug such as pituitrin, ergot, or quinine. For the absolute diagnosis of an intra-uterine ring an intra-uterine examination must be made during the first, second, or third stage of labor. The management of constriction-ring dystocia is the management of a prolonged labor. At the end of eighteen hours the urine should be tested for acetone and thereafter the test should be repeated every twelve hours. A negative acetone test throughout a prolonged labor should be the criterion for the conservative management of a prolonged labor.

The patient should receive plenty of fluid and food rich in carbohydrates and sufficient sedatives to insure adequate rest or sleep. The time for operative interference in prolonged labor depends on the conditions governing the indications rather than on the time element of the second stage. If the constriction ring does not relax spontaneously or after the administration of morphine and scopolamine, other pharmacological agents such as ether and epinephrine are employed. Epinephrine is used as follows: With the hand in the uterus to determine the occurrence of relaxation, 10 minims of the drug are given or injected. If there is no relaxation after a few minutes another injection of 5 minims is given. A successful forceps operation requires relaxation of the ring occurring either spontaneously or after the use of an anesthetic, a drug, or traction of moderate degree. Manual dilatation of a constriction ring is to be condemned. Version and extraction should be resorted to only under very exceptional circumstances.

Cesarian section is not the solution of the problem of constriction-ring dystocia. When the diagnosis of constriction-ring dystocia is made in the presence of a normal cephalopelvic relation and a normal position and presentation, delivery should usually be effected by way of the vagina. Occasionally craniotomy and embryotomy are necessary when other operative procedures fail. STANLEY C. HALL, M.D.

Cordua, R. Internal Over-Rotation of the Head and Forceps Delivery (Innere Ueberdrehung des Kopfes und Zangen Geburt). *Zentralbl f Gynaek*, 1935, p. 1996.

After calling attention to the fact that there is practically no mention of internal over-rotation of the head in the literature on delivery, the author reports two such cases which he recently observed.

The first case was that of a para-iii thirty-one years old. After three hours of labor the head was still undelivered. Vaginal examination showed that the cervix was completely dilated and the head was

distorted two fingerbreadths above the pelvic floor. The sagittal suture was in the second oblique diameter and the small fontanel in the right anterior position. The Kjelland forceps were applied in the first oblique diameter. When the attempt was made to turn the small fontanel more to the right in order to pull down the head with the sagittal suture on the pelvic floor, a distinct elastic resistance was noted. Therefore the head was pulled down in the second oblique diameter and delivery was effected gradually. On delivery of the trunk it was found that the back of the fetus had been lying in the left anterior position.

The second case was that of a primipara twenty-six years old. After three hours of labor the head was found to be lying two fingerbreadths above the pelvic floor. The large fontanel was in the left anterior position and the sagittal suture in the first oblique diameter. The Kjelland forceps were applied in the second oblique diameter with the lock directed posteriorly toward the small fontanel. The intention was to turn the small fontanel from the right posterior to the right anterior position and to place the head in the occiput anterior position. After marked resistance the large fontanel was turned anteriorly and the occiput posterior position resulted. The back of the fetus was lying in the left posterior position.

The author warns against the application of forceps merely on the basis of the findings of palpation. He believes that before forceps are applied it is essential to determine the position of the back again because of the possibility of lateral over rotation. (Hosner) JACOB E. KLINE M.D.

Dujol, Michelon, and Jaubert. Subcutaneous Symphysectomy According to Zarate's Method (La symphysectomie sous-cutanée à la Zarate). *Rev. franç. de gynéc. et d'obst.* 1935, 30, 785.

The authors report twenty-seven cases in which Zarate's technique for subcutaneous symphysectomy was employed for dystocia due to contracted pelvis. This technique is as follows:

The patient, under general anesthesia, is placed in the obstetrical position while two assistants hold both thighs in sharp abduction and flexed high upon the abdomen. Under precautions for sterility a pointed bistoury is then inserted perpendicularly so as to strike the symphysis at a point just below the superior pubic ligament. Meanwhile the surgeon introduces his index and middle fingers into the vagina in close apposition to the posterior surface of the symphysis to control the advance of the bistoury point and guard the urethra against trauma. The bistoury is pushed into the joint by oscillating movements to the inferior border a distance of about 3 cm. When the inferior border is reached the forceful abduction of the thighs causes the joint to separate with a characteristic crackling sound. The bistoury is then withdrawn.

The advantage of the method is that it does not destroy the superior ligament as did older methods.

The fingers of the surgeon's left hand control the advance of the bistoury and hold the urethra to one side to prevent injury.

Following the operation, delivery is allowed to proceed spontaneously unless definite maternal or fetal indications demand operative interference. Fetal distress, as indicated by irregular and feeble heart sounds, is often relieved promptly when compression of the skull is diminished by symphysectomy. After the operation a Giff bandage may be applied, although this is not necessary. The patient is encouraged to elevate her feet on the third or fifth day. She is allowed to get up on the tenth to fifteenth day and thereafter to resume walking gradually. The authors have noted no serious sequelae.

According to the authors, symphysectomy is indicated in cases in which cesarean section is contraindicated, namely: those of potential or actual pelvic infection during prolonged and difficult labor due to pelvic contraction. It is not intended to replace cesarean section under proper conditions. Its purpose is to do away with high forceps deliveries and to save fetal lives that would be sacrificed by destructive operations. HANCOCK C. MACK, M.D.

Heynsmann, T.: The Frequency of Destructive Operations on the Fetus, and the Possibility of Decreasing It (Die Häufigkeit der zerstörenden Operationen und die Möglichkeit ihrer Verminderung). *Zentralbl. f. Gynäk.* 1935, p. 9.

The author studied the statistics of Hamburg for the period from 1912 to 1934 to determine the degree to which destructive operations on the fetus are still justified today and the nature of the strict indications for such operations. In 47,64 deliveries 115 destructive operations were performed. One hundred and seven of these were done in claustris. The first decrease in the last three decades occurred in 1934. There were 95 craniotomies and 19 decapitations. The maternal mortality varied from 3.19 to 21 per cent. The average was 6.1 per cent (corrected, 1.9 per cent). In a tabular summary the operative indications are presented respectively according to the condition of the child and according to the general and particular obstetrical condition of the mother and the child.

The author comes to the conclusion that in some of the cases, such as those of fetal malformation, a dead child, eclampsia, and premature separation of the placenta, a destructive operation was justified. However, in the cases of full-term fetuses, decapitation and perforation could often have been avoided by the correct conduct of labor and timely transfer of the mother to the clinic. Among the cases which come under this classification are those of contracted pelvis, transverse position, false presentation of the vertex, and premature rupture of the membranes. Heynsmann believes that artificial premature delivery and prophylactic version should disappear from obstetrical practice. Abdominal cesarean section should be performed at the right time in

preference to a destructive operation. When the physician and midwife are not called too late, they are responsible for the timely transfer of the woman to the clinic. (F. SEIGERT) JACOB E. KLEIN, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Berndt, G. The Mortality from Childbirth and from Puerperal Fever During the Last Forty Years (Die Sterblichkeit im Kindbett und am Kindbettfieber während der letzten 40 Jahre) 1935 Leipzig, Dissertation

The author reviews the mortality of the sequelæ of childbirth and abortion from the year 1892 to date. He discusses the influence upon it of the decrease in the number of births, medical care of pregnant women in the cities and rural districts, the economic status of the population of certain districts, and especially epidemics of abortion. By dividing the reviewed forty years into periods he shows the influence of war, inflation, and social conditions. He states that the obtaining of exact mortality statistics is rendered difficult by the frequent failure to separate cases of childbirth from cases of abortion and by the fact that many deaths due to childbirth and to sepsis from abortion are recorded as due to puerperitis.

The mortality rates in the German provinces in the different periods are presented in tables. At the turn of the century the puerperal mortality showed a gradual decrease except in the three large cities, Berlin, Hamburg, and Bremen. The improvement was most marked in cities of medium size. In the early part of this century the number of deaths in relation to the number of births rose considerably. This was shown especially by the statistics for Berlin. It is possible that many of the women who died in Berlin came to the large obstetrical clinics of that city from the surrounding rural districts.

In the period from 1904 to 1909 only a few provinces showed a slight rise in the mortality whereas, in general, the number of births decreased. The marked increase in puerperal mortality in the large cities in the period from 1907 to 1909 may again be attributed to the influx of women from the country districts to the obstetrical clinics of the cities.

In 1910 the mortality decreased considerably, but in 1911 there was an increase which may have been related to the increase in the number of abortions. In the compilation of statistics cases of abortion were not separated from cases of childbirth at that time throughout Germany. The influence of the ever-increasing number of abortions on the height of the mortality of puerperal fever becomes clearer when districts with a principally urban population and the highest mortality are compared with the other districts of the country. This marked difference appeared first during the last prewar years. The in-

crease in the mortality of abortion was especially marked in Berlin and Hamburg.

In Germany as a whole, the puerperal mortality steadily increased from the year 1906 to 1911 with the single exception of the year 1910. During the war years the percentage of women dying in childbirth increased continuously. The absolute figures, like the number of deliveries, decreased markedly and reached the minimum in the year 1917. The total increase in the mortality of puerperal fever in the cities during the prewar and war years was therefore due principally to the increasing number of abortions on the one hand and the decrease in the number of births on the other.

The increase in deaths from puerperal fever, which, since 1916, have been more numerous than those due to other complications of childbirth, is attributable in large part to the increase in the number of induced abortions, especially in the post-war period. In the period from 1924 to 1926 a decrease occurred, but in the period from 1927 to 1929 there was another increase in the mortality for the country as a whole. The metropolitan influence was again apparent. In 1925, two girls under fifteen years of age died of puerperal fever in the Berlin and Hanover districts respectively.

In recent years the mortality has decreased markedly in Berlin, Hamburg, and Bremen, and in the last year in practically all parts of the country.

The mortality due to other obstetrical complications is higher in the rural districts than in the cities, probably because of a lack of midwives, too long delay of medical attention, and lack of asepsis in the former districts. The danger to the mother is greatest at the beginning of the puerperium. Puerperal mortality is dependent also on the age and parity of the woman. The age between twenty and thirty years is most favorable for childbearing. At all ages the marked influence of the first childbirth is evident.

Although in the clinics and hospitals the mortality of puerperal fever has steadily decreased since the days of Semmelweis, there has been an increase in the mortality in such institutions parallel with the increase in the number of abortions. While the frequency of puerperal fever in the obstetrical institutions has decreased, the mortality of this condition has steadily increased. In the period from 1902 to 1904, only 25 per cent of cases of puerperal fever in obstetrical institutions were fatal, whereas in the period from 1911 to 1913 nearly 40 per cent of them had a fatal termination. After a further increase, this mortality has shown a considerable decrease since 1922. Today, because of the many new, well-managed obstetrical institutions in which modern rules are followed to obtain asepsis and to which women are going in increasing numbers, the mortality of childbirth is decreasing.

(STRAKOSCH) LEO A. JUHNEKE, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Bliger, F., and Julien, J.: Elimination Urography and Exploration of Pyelo-Ureteral Function (Urographie d'élimination et exploration fonctionnelle pyélo-urétrale) *J. Chir. et Méd. Gén.* 1935, 40: 377

Certain substances opaque to the X rays, when given intravenously are rapidly eliminated by the kidneys and produce a roentgen picture of the excretory tracts of the kidney when the urine is eliminated. Roentgenography of the urinary tract with the use of such substances is called "elimination urography." Its value in the examination of the kidney has been the subject of considerable discussion.

Of ninety-one cases in which the authors employed elimination urography they obtained information of value in thirty-two. In fifty-nine, the results were negative. The authors discuss the different signs given by the method and present diagrammatic illustrations of a number of cases.

In judging the results of elimination urography all of its signs and also the results of other methods of exploration must be taken into consideration. Anatomical lesions are not revealed by this method unless they are quite extensive and severe. Even then, the results should be checked up with those of ascending pyelography. In some cases information was obtained with regard to kidney function, but the findings were purely qualitative and not quantitative. There are other more valuable methods of determining kidney function.

The best field for elimination urography is the study of the function of the renal pelvis and the ureter. In such a study the method often shows the presence of stasis or hyperkinesis. It is indicated particularly in cases of suspected hydronephrosis. It shows the nature of the disturbance—whether it is a hyperkinesis or an atony.

In short, elimination urography is an excellent method if used for the study of pyelo-ureteral function and not of kidney function.

AUDREY GORE MOWAT, M.D.

Slaviero, A.: Conservative Surgical Treatment of Postoperative Renal Hemorrhage (Trattamento chirurgico conservativo della emorragia renale post operatoria) *Arch. Med. e Chir.* 1935, 4: 737

Slaviero says that pyelotomy is usually the operation of choice in renal lithiasis, especially in the aseptic, monocystic type in which renal function is good. However there are circumstances which require nephrotomy for the transparenchymatous removal of the calculus. Essentially the only change that has been made in the operation of nephrotomy has been the recent substitution of small incisions

opening into individual calyces for the previous very large incisions. Such small incisions have been rendered possible by the ability to localize the calculus. It follows, therefore, that roentgen examination is of great value in determining whether pyelotomy or nephrotomy is desirable.

The mortality following the classical nephrotomy varies according to different reports from 5 to 15 per cent. The principal causes of death are infection, early hemorrhage, and late hemorrhage. Most to be feared is the late or delayed hemorrhage which occurs immediately from eight to fifteen days after the operation. Such hemorrhage may become so serious as to necessitate sacrifice of the kidney. It is reported to occur in about 10 per cent of cases in which nephrotomy is done. Its pathogenesis is probably related to the tension of the sutures in the parenchyma, which, if too loose, allows bleeding, and if too tight, produces pressure necrosis with secondary hemorrhage.

To obviate this complication the surgeon has resorted to two principal means: the development of a more accurate technique to prevent the occurrence of the hemorrhage, and attempts to stop the hemorrhage after it has already started. The author lists the various procedures which have been followed to accomplish these purposes.

In a case reported by Slaviero nephrotomy limited to the upper pole was done to remove a stone in the superior calyx. Late hemorrhage occurred and became progressively worse despite the use of ordinary conservative measures. Therefore, at a second operation a branch of the renal artery which supplied the region in which the nephrotomy was done was ligated. The hemorrhage ceased immediately. The short and relatively minor operation probably saved the patient's life. Postoperative studies revealed no change in renal function. Presumably the limited zone of infarction resulting from the ligation of the small branch did not greatly reduce the volume of functioning kidney. This method therefore constitutes a moderate form of treatment effecting a cure in an otherwise serious condition.

To clarify this method of attack further the author presents a short discussion of the anatomical variations of the renal artery as an understanding of these variations is important in the selection of the branch to be ligated. A. LOUIS ROSE, M.D.

Goldstein, A. E., and Abernethy, B.L.: Urinary Calculi in Paget's Disease. *Am. J. Surg.* 1935, 50: 370

The authors discuss the relationship of urinary calculi to osteitis deformans which is characterized clinically by hypertrophy and deformity of the bones involved which may or may not be associated

with pain. The pathological changes consist essentially of a rarefying osteitis combined with new bone formation. The onset is insidious with a tendency toward symmetrical involvement of the bones, especially the tibia, femur, and pelvis, and the frontal, parietal, and occipital bones of the skull. Possible causes of Paget's disease are (1) pathological or physiological changes, (2) dietary deficiency, and (3) changes in calcium metabolism. Diet has been demonstrated as the cause in monkeys kept on a diet insufficient in its organic and vitamin content to which an excessive amount of calcium was added.

It has been contended by some that the Vitamin A deficiency present in various bone diseases may be coincidental and that the cause of urinary calculi is faulty calcium metabolism. On the other hand it has been suggested that the character of the renal epithelium will change so that it will permit crystalloid to become adherent to epithelial cells. The pathological and physiological changes are mainly associated with the peripheral blood vessels, producing sclerotic changes. The renal arteriosclerosis is not a factor in the production of bony changes. It is either secondary to the latter or merely associated with them. The authors believe that the cause of the relationship of osteitis deformans and urinary lithiasis is to be sought in the disturbance of the calcium and phosphorous metabolism together with secondary impairment of renal function.

From a study of six cases the authors draw the following conclusions:

1. Urinary lithiasis is a not uncommon complication of osteitis deformans.

2. Several probable etiological factors may be considered in establishing a causal relation between osteitis deformans and urinary lithiasis: (a) a pathological condition such as arteriosclerosis or endarteritis affecting primarily the bones and secondarily the kidneys, (b) dietary deficiency, and (c) a disturbance of calcium metabolism.

3. While the mechanism responsible for the formation of urinary calculi in osteitis deformans is undetermined, the most probable causes are a disturbance of the calcium metabolism and associated impairment of renal secretory function.

4. Since experimental studies have clearly established the rôle of diets deficient in Vitamin A in the formation of urinary calculi in experimental animals and in the development of osteitis deformans, it is obvious that careful attention should be paid to the diet in the treatment and prevention of calculi formation in persons afflicted with osteitis deformans.

J. SYDNEY RITTER, M.D.

Goldstein, A. E. A New Surgical Procedure for the Treatment of Polycystic Kidneys. *J. Urol.*, 1935, 34, 536.

The author believes that radical surgery is indicated in the treatment of polycystic disease of the kidneys when there is gradual reduction of kidney function with impending uremia, when there is se-

vere pain due to the size of the kidneys or cysts, when severe hemorrhage occurs, and, as a last resort, in cases with uremia and coma.

In the operation he advises extraperitoneal exposure is obtained by either the Gibson incision or the usual lumbar route. After lengthwise incision of the true capsule, numerous large cysts are opened and their walls are excised if possible. Next, the cortex is split from pole to pole and more cysts are drained. The split edges of the kidney are then approximated to the skin edges by a suture, a nephrocuteaneous fistulous tract being left. Granulation occurs in four weeks and the wound heals over in from six to ten weeks, allowing further aspiration of cysts without further surgery.

THEOPHIL P. GRAUER, M.D.

Henline, R. B. The Cause and Treatment of Non-Calculous Uteropelvic Obstructions. With a Report of Sixty-Six Operated Cases. *J. Urol.*, 1935, 34, 584.

From the sixty-six surgically treated cases of non-calculous ureteropelvic obstruction reviewed in this article, Henline concludes that hydronephrosis is usually due to obstruction at the ureteropelvic junction and its cause should be sought while the kidney is in its normal position. In the reviewed cases the chief causative factors were stricture and aberrant vessels. Nephrectomy was necessary in forty-five, severance of blood vessels or fibrous bands and nephropexy were done in sixteen, and a plastic operation was performed in six. The first two procedures gave uniformly good results. Of the plastic operations, Henline favors re-implantation of the ureter.

DONALD K. HIBBS, M.D.

BLADDER, URETHRA, AND PENIS

Lewis, L. G., Langworthy, O. R., and Dees, J. E. Bladder Abnormalities Due to Injury of the Motor Pathways in the Nervous System. *J. Am. Ass.*, 1935, 105, 2126.

By means of an air-water manometer and a recording tambour or kymograph the authors made cystometric readings in the cases of patients with unilateral and bilateral cortical lesions to study the behavior of the detrusor muscle during bladder filling. They prefer water manometers to mercury manometers because the former are more sensitive in recording small waves of contraction. They state that the type of record obtained varies with the method of bladder filling. They prefer to introduce the fluid in equal proportions (25 or 50 c. cm. at one time) and record the behavior of the bladder in the intervals. Thus it is possible to see the reaction of the muscle to a sudden stretch and to measure the time required for the pressure to reach a resting level in accommodation to the new volume. The activity of the stretch reflex is tested in this way. With release of cortical control the stretch reflex is hyperactive. The bladder empties precipitously with a small volume of fluid. When the motor pathways from the midbrain are in-

jured bilaterally along with the corticospinal tracts, the waves of contraction are frequent but of small amplitude and ineffective in emptying the bladder.

A study of contraction waves of the vesicle during filling is of aid in judging the efficiency of a bladder with damaged innervation. The authors' observations suggested also that one hemisphere is dominant in bladder control and that in right handed people this dominance is on the left side.

FRANK M. COCHRAN, M.D.

Robinson, R. H. O. R.: The Significance of Vesical Diverticula. *Brit J Urol* 1935, 7: 313.

The author reports three cases of diverticulum of the bladder in men under the age at which prostatic enlargement is most common. He states that the obstructive atrophy at the bladder neck was of an inflammatory nature and although unstriated muscle was found in the wall of the diverticulum (suggesting a congenital origin) removal of the obstruction was necessary for cure.

DOUGLAS K. HIRSH, M.D.

Diamantidis, A.: Bilharzian Cancer of the Bladder. Eleven Personal Cases, Including Two of Cancer of an Uninfected Bilharzian Bladder (Le cancer bilharzien vésical. A propos de onze cas personnels dont deux cas de cancer bilharzien (sans son infecté)). *J Urol Méd et Chir* 1935 40: 408.

The author calls attention to the fact that cancer in general is less frequent in Egyptians than in Europeans or Americans. However cancer of the urinary bladder is fairly common in Egypt, especially in persons between the ages of thirty and forty years. This frequency is supposedly related to the high incidence of bilharzian infestation which is estimated to be present in from 70 to 80 per cent of the population. By most writers on the subject it has been stated or implied that cancer of the bladder occurs in the bilharzian bladder only after secondary infection with alkalization of the urine.

The author reports twenty-two cases of cancer of the bladder observed over a period of eight years. Sixteen of the patients were Egyptians and six were foreigners residing in Egypt. None of the latter had a bilharzian infestation. Of the sixteen Egyptians, eleven, all men, had a definite bilharzian infestation, (nine were infected secondarily and two were free from infection); one had a doubtful bilharzian infestation, and four were free from bilharzia. The ages of the patients ranged from thirty to seventy-two years. Of the eleven with bilharzian infestation, two were fifty-eight years of age and nine were between thirty and forty years of age. Of the six non-Egyptians with cancer of the bladder five were more than sixty-five years of age.

The twenty-two cases of cancer are reported in detail. In practically all of them calcific deposits were present in the bladder.

Ferguson believes that the ova of bilharzia secrete a substance which is irritating to the epithelium whereas Dobay and Moore are of the

opinion that the secondary infection so often associated with bilharzias is the precipitating factor in the development of cancer. The author points out that calcification and living bilharzia ova are both usually present in cases of cancer of the bladder in young persons. He believes that in a bladder more or less filled with bilharzian calcifications, a fresh infestation with the schistosomes creates a true carcinogenic irritation, and that bilharzian calcification as related to vesical cancer in the same way as leucoplakia is related to cancer of the tongue.

MAX M. ZIMMERMAN, M.D.

Rabeon, R. M.: Atypical Carcinoma of the Urinary Bladder Simulating Myosarcoma. A Report of Two Cases and a Review of the Literature. *J Urol* 1935, 34: 635.

The author reports two cases of atypical carcinoma of the bladder in which a diagnosis of sarcoma was made and the epithelial character of the tumors was first revealed at autopsy.

Sarcoma of the bladder is rare. In reported series of vesical neoplasms its incidence ranged from 0.33 to 4.88 per cent. It occurs about 3 times as often in males as in females. The symptoms resemble those of carcinoma of the bladder. The site of bladder involvement is also similar. The differential diagnosis is seldom possible as even the findings of examination are often confusing.

A résumé of all cases reported in the literature is given.

ANDREW MCMALEY, M.D.

DeLair, W. R., and Stevens, A. R.: Traumatic Rupture of the Urethra. *J Urol* 1935, 34: 372.

The authors emphasize the value of early surgical repair of rupture of the urethra as compared with delayed treatment. They state that there is still a difference of opinion as to whether catheter treatment should be used or early plastic repair should be undertaken. They call attention to the importance of the relationship of the site of the rupture of the urethra to the triangular ligament and discuss the various traumatic factors.

It is not difficult to diagnose traumatic rupture of the urethra. The classical symptoms and signs and the history make the diagnosis fairly simple. In all of the thirty-seven cases reviewed by the authors a history of trauma was given.

Hospitalization is urged and the dangers of acute septic infection are mentioned. Early surgical repair is often simple. End-to-end anastomosis with cystostomy is frequently done. End-to-end anastomosis of the urethra is the operation of choice. The value of immediate cystostomy is stressed. The location of the proximal end of the urethra found by a retrograde catheter through the bladder neck varies. In the cases of patients in severe shock secondary rather than primary urethral operation is advisable, but the delay should not be long enough for the formation of dense scar tissue.

In the cases reviewed by the authors there were six deaths.

J. STOKES KRITZ, M.D.

Freiberg, H. B., Total Urethrocystectomy in the Female—A New Technique *J. Urol.*, 1935, 34 615

In properly selected cases total cystectomy following diversion of the urinary stream yields brilliant results. Objections to it are its high mortality and the fact that some urological surgeons have obtained better results from combinations of other measures. The causes of the high mortality are ascending infection, the performance of urethrocystectomy in one stage, generalized peritonitis, anuria, surgical shock, hemorrhage, and the frequently poor condition of patients subjected to the procedure.

The mortality of the different methods of urinary stream diversion is as follows:

	Per cent
1 Urethral implantation	100
2 Intestinal implantation	59.2
3 Vaginal implantation	50.0
4 Ilia or lumbar implantation or nephrostomy	28.7

The author describes a technique for combined vaginal and suprapubic urethrocystectomy for the female, and reports two cases in which it was used.

ANDREW McNALLY, M.D.

GENITAL ORGANS

Kraas, E., The Treatment of Prostatic Hypertrophy and Stenosis of the Neck of the Bladder by Endo-Urethral Resection (Die endourethrale Resektionsbehandlung bei Prostatavergrößerung und Blasenhalstenose) *Ergebn. d. Chir.*, 1935, 28 289

This article comes from the Clinic of Voelcker in Halle where so much basic work has been done in the field of urological surgery. Voelcker emphasized before the Surgical Congress that greater attention should be paid to the treatment of prostatic hypertrophy by the endo-urethral method. This article shows the active work that has been done at his clinic in the study of the problem. The article presents an admirable review of the development of the endovesical methods. Both old apparatus which has already become historical and modern electrical resecting instruments are described, and the essentials of electrical methods are discussed. A special section is devoted to the vascular supply of the region of the prostate with reference to the bleeding in these operations. The author presents his studies with numerous pictures of the injected blood vessels. The indications for the modern treatment of cases which cannot be operated upon radically are discussed.

Endo-urethral resection of the prostate should be considered in cases of

- 1 Sclerosis of the sphincter
- 2 Barrier formation and valve formation at the neck of the bladder
- 3 Certain forms of prostatic hypertrophy
 - a Early hypertrophy of an isolated lobe
 - b Hypertrophy of moderate grade of the middle and posterior lobes

c Intra-urethral enlargement of the lateral lobes

4 Inoperable carcinoma

The results in the author's 220 cases in which the resection method was used have been quite good. Because of the brevity of the period of observation, the end-results are not discussed. However, some of the cases have been observed for as long as three years. Strict differentiation must be made between the coagulation method and the resection method. There is no doubt that, in spite of all the criticism which follows every new method of treatment, resection has proved practicable. It is essential that those engaged in prostatic surgery acquaint themselves with this method and give it a thorough trial. It by no means takes the place of the radical operation or renders it superfluous as the latter still has indications as before.

(ROEDELIIUS) JOHN W. BRENNAN, M.D.

MISCELLANEOUS

MacKenzie, D. W., and Wallace, A. B., The Lymphatics of the Lower Urinary and Genital Tracts. An Experimental Study, with Special Reference to Renal Infections *J. Urol.*, 1935 34 516

MacKenzie and Wallace attempted to determine experimentally the rôle played by the lymphatics in so-called ascending urinary infection and to correlate the relationship between the lymphatics of the bladder, ureter, and kidney. In experiments on rabbits they devised a method for studying the absorption and migration of visible substances from the bladder by observing the retroperitoneal and pelvic structures intact as a whole. They found that no absorption took place from the healthy mucosa of the bladder, and that only slight absorption occurred after trauma. In no instance was dye demonstrated passing up and along periureteral lymph passages.

The authors conclude that if dye gets into the kidney following its injection into the bladder, trigone, or lower end of the ureter, it migrates first to the lumbar or iliac nodes, then to the thoracic duct into the circulation and finally reaches the kidney by way of the blood stream.

THLOPHIL P. GRAUER, M.D.

Goldstein, A. E., and Abeshouse, B. S., Urinary Calculi in Bone Diseases. A Review of the Literature and a Report of Cases *Arch. Surg.*, 1935, 31 943

From a review of the literature and a study of fourteen cases of urinary calculi associated with various bone diseases, the authors draw the following conclusions:

1 There appears to be a definite etiological relationship between urinary lithiasis and various chronic bone diseases, consequently, in all cases of urinary calculi information concerning a previous bone injury or disease should be sought and carefully considered from the etiological standpoint.

2. The development of urinary calculi during the course of chronic bone disease is uncommon though not rare.

3. Infection of the urinary tract secondary to acute or chronic infection of the bones or joints, i.e. arthritis or osteomyelitis, may be a predisposing factor in the formation of urinary calculi.

4. Urinary calculi may develop following injuries of the vertebrae and cord.

5. The formation of urinary calculi in the presence of rickets, osteitis deformans, osteomalacia, osteitis fibrosa of von Recklinghausen, osteitis fibrosa cystica associated with hyperparathyroidism, and other diseases of bone appears to be dependent upon a disturbance of the calcium-phosphorus metabolism which upsets the colloid-crystalloid equilibrium of the urine causing the precipitation and coalescence of the urinary constituents.

6. In the treatment and prevention of urinary calculi care must be taken to provide an adequate diet. This is of importance especially in the cases of persons with a chronic bone disease. A diet deficient in Vitamin A and inorganic calcium and phosphorus has been found to be an etiological factor in the formation of urinary calculi in the experimental animal and is reported to be an etiological factor in the clinical and experimental production of several types of chronic bone diseases, i.e. rickets, osteitis deformans, and osteomalacia.

Of the authors fourteen cases of urinary calculi associated with bone disease, the stone formation was related to amputation of the extremities in four, osteomyelitis in two, fractures of long bones in three, fracture of the pelvis in one, tuberculosis of the hip in one, arthritis deformans with associated osteitis deformans in one, and scoliosis in two.

LOREN NEWBOLD, M.D.

Higginson, C. C.: The Medical Management of Urinary Lithiasis. *Surg Clin North Am* 9:35 5 1933

Little attention has been paid to the dietary treatment of urinary lithiasis. It has been shown experimentally that a protracted diet deficient in Vitamin A often results in urinary lithiasis, and that the calculi dissolve and disappear spontaneously when Vitamin A is added to the diet. Selected groups of patients with urinary calculi were treated by the author dietetically to determine whether the results obtained experimentally could be duplicated clinically. If the calculus causes definite obstruction with resulting damage to the renal parenchyma and renal function, surgical intervention is more advisable.

The dietary treatment was used in the following groups of cases: (1) those in which surgery was refused; (2) those in which bilateral renal calculi were present but surgery was inadvisable; (3) those in which calculi were present in one renal calyx without producing obstruction; (4) those in which calculi were present in the renal pelvis without producing obstruction; (5) those in which calculi were passed frequently but could not be demon-

strated roentgenologically; (6) those in which there were calculi of sufficient size to necessitate nephrectomy; and (7) those in which the purpose of the dietary treatment was to prevent recurrence of lithiasis after the removal of stones.

The dietary treatment should be preceded by plain roentgenography of the entire urinary tract to determine the presence of a stone. Intravenous urography to determine the location of the stone in the kidney, the presence of obstruction and of a non-opaque stone, and the condition of renal function (the phenolphthalein test (cystoscopy) to determine the function of each kidney, determination of the hydrogen-ion concentration, bacteriological culture and the usual routine study of the urine from each kidney and the bladder and, in some cases, pyelography. The blood content of urea, creatinine, sugar, uric acid, calcium, phosphorus, and phosphatase should be determined, especially in cases in which calculi of the uric acid type are present and those in which changes in the blood calcium and phosphorus may indicate parathyroid dysfunction. Passed calculi should be examined chemically.

Hospitalization for from three to seven days is necessary to teach the patient the principles of the dietary treatment and how to prepare his meals. The hydrogen-ion concentration of the urine should be kept at from 4.9 to 5.5 and determined daily. As a rule the high vitamin (especially Vitamin A) acid ash diet gives the urine an acid reaction, but in cases of protein infection, both acidifiers and Vitamin A must be given, such as sodium acid phosphates in capsules or ammonium chloride in enteric coated tablets. The author presents a list of acid-ash foods and the amounts necessary in the daily diet. He gives Vitamin A in the form of 3 capsules of heliver oil or carotene in oil 3 times daily. On the patient's admission to the hospital, an excess of acid-ash of about 17.3 c.m. is given. This is varied daily and, in cases of protein infection, may be increased to from 30 to 50 c.m. If the hydrogen-ion concentration of the urine is not reduced to from 4.9 to 5.5, ammonium chloride is given until the desired hydrogen ion concentration is obtained. If the blood uric acid is constantly high or analysis of a passed calculus shows its content to be chiefly uric acid, meat broth and cream soups are omitted from the diet, only one serving of boiled meat is allowed daily, glandular meats, asparagus, creamed peas, and string beans are prohibited, and restrictions are placed on whole wheat bread, all cereals except oat meal, and tea and coffee. After the patient thoroughly understands the diet and the required hydrogen-ion concentration of the urine has been maintained for a few days, he is discharged. He is advised to buy a sample apparatus (Lalliotte) with which to make his own determinations of the hydrogen-ion concentration of the urine. These determinations should be made thirty minutes before lunch each day to avoid the alkaline tide. The patient is instructed to report to his physician on his daily hydrogen ion determinations every two weeks. At the end of each

an interval a change in the diet may be found advisable. Strict adherence to the diet is absolutely essential.

In 3 of 6 cases treated in the manner described, stones too large to pass spontaneously disappeared within four months. In a case in which one kidney contained 1 large stone and the other kidney 5 stones the 5 stones disappeared completely in a period of seven weeks without a change in the other kidney. In 1 case no change was noted in a small calculus in the lower calyx after five months. In 2 cases of large bilateral calculi, the stones definitely diminished in size in thirteen months. In another case 323 small calculi were passed by a patient who never passed any sand or stones until the diet was followed for three or four months. In the case of a man seventy-nine years of age, roentgenography showed that a large renal calculus had disappeared in seven months. The author has also complete reports of 18 cases of complete disappearance of renal stones under medical treatment.

LOUIS NEUWILT, M D

Quiroga, M I, and Bosq, P. Venereal Lymphogranulomatosis (Contribución al estudio de la linfogranulomatosis venerea) *Semana med* 1935 42 1298

In the period from 1920 to 1934 the authors saw twenty-nine cases of inguinal lymphogranulomatosis in the Dermatosyphigraphic Clinic of Buenos Aires. These cases are evidently increasing in that city particularly in certain zones where there seem to be sources of contagion.

The clinical history, biological and serological reactions, blood picture, and biopsy findings in these cases are discussed. As a rule the patient's attention is called to the condition first by enlargement of the glands. The primary lesion is slight and often not noticed by the patient. In eleven of the authors' cases it still persisted at the time the patient was admitted to the Clinic. The ulcers are small and do not show either spirochetes or Ducrey's bacilli. The authors describe three of them in detail with photographs. Plasmocytosis predominated in the infiltration, and there were many lymphocytes. Only

a few polynuclears were found in or near the capillaries. An antigen prepared from one of these lesions gave positive results in two cases.

The incubation period varied from four to twenty days. In one case the primary lesion and the enlargement of the glands began simultaneously twenty days after the infecting coitus. Five of the patients were suffering also from syphilis. All presented the classical picture of enlargement of the glands. In all but one this was followed by fistulization and the discharge of a seropurulent secretion. Curiously enough in the one case in which spontaneous cure occurred there was no suppuration. In the cases with syphilis, none of the treatments tried, including those of tartar emetic, Dmelcos vaccine, Frei antigen, radiotherapy, ultraviolet light, diathermy, and intense specific treatment seemed to influence the course of the disease to any great degree.

AUDREY GOSS MORGAN, M D

Italy, M. The Characteristics of Venereal Granuloma in Uruguay (Le granulome venerien Ses caracteristiques en Uruguay) *In Fac de med de Montevideo*, 1935, 20 20

Venereal granuloma is a local disease affecting only the skin and the mucous membrane of the orifices. It forms patches which are at first nodular and later almost always ulcerogranular. It runs a chronic course with a marked tendency toward sclerosis. It is often very exudative. The beginning localization is always in the genital region. The condition is auto-inoculable, certainly contagious, and of venereal origin.

The author describes the macroscopic and microscopic appearances in detail with the aid of illustrations and reviews the characteristics of the disease in Uruguay as compared with its characteristics in other countries. In Uruguay the course is as a rule more rapid, spontaneous cicatrization is less common, there is a higher proportion of forms showing elephantiasis, treatment is less effective, the condition is less contagious, and adenopathy is more frequent than in other countries, and Donovan's bacillus is often not found.

AUDREY GOSS MORGAN, M D

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Menegaux, G. and Odlette, D: The Action of Different Metals on Bony Tissue. An Experimental Study on Animals (De l'action des différents métaux sur le tissu osseux. Etude expérimentale sur l'animal) *J de chir* 1935 46 695

Since, in spite of rigid asepsis and a skillful technique, the results of osteosynthesis are still unsatisfactory in a certain number of cases, the authors concluded that the choice of metal might be an important factor in the outcome of the operation. Therefore they carried out further experiments on the reaction of tissues to various metals, this time in the previous work having been done *in vitro*.

Three series of studies were made. In the first, small metal disks were inserted between periosteum and bone in rats; in the second, wires were used to encircle the bone in rats; and in the third, plates and screws were applied to bones with and without fractures in rabbits and dogs. At intervals ranging from forty-eight hours to four months after the operation the animals were sacrificed and the tissues adjacent to the metal carefully studied microscopically. Complete protocols with many photomicrographs are included in the article.

The authors state that the results of these experiments confirm those of their experiments on tissue cultures which showed that soft steel, aluminum bronze, duralumin and magnesium are definitely harmful to the tissues, and that three special steels, V1A extra, metal D and stainless D are non-toxic and do not inhibit bone production.

BARBARA B. STIMSON, M.D.

Parenti, G. C: Marble Bones—Albers-Schoenberg Disease (La malattia della ossa di marmo—marbo di Albers-Schoenberg) *Chir e orgi i di ment-mali* 1935 1 200

Parenti reports a case of marble bones in a man sixty-one years old who, when first seen, presented the typical picture of pernicious anemia. Liver therapy was given and after forty days the patient was discharged from the hospital in fairly good condition.

Three years later he returned to the clinic complaining of severe pain in the spine and extremities and increasing weakness. Soon thereafter the lower extremities assumed a peculiar fixed position. The anemia improved under liver therapy, but the general condition became worse. Bilateral bronchopneumonia developed, and the patient died about two and one half months after his re-admission to the hospital.

Postmortem examination revealed an extensive osseous sclerosis with a diffuse marble-like transfor-

mation of the entire skeleton. Other pathological findings were visceral anemia, degeneration of the spinal cord at the level of the lumbar enlargement, terminal foci of bronchopneumonia in both inferior lobes, myocardial degeneration, fatty degeneration of the liver, a mild catarrhal gastritis, a gastric polyp, hypertrophy of the parathyroids, microcytic colloid transformation of the thyroid gland, edema of the lower extremities and scrotum, and gelatinous bone marrow. The roentgenograms showed markedly increased density of all of the bones.

Microscopic examination of the bones disclosed complete absence of the normal elements. The Haversian and Volkmann canals were obliterated, and the bony lacunae, which ordinarily contain osteoclastic elements, were totally absent. There was little evidence of bone absorption. The medullary cavities were small, and myelopoiesis was reduced to the minimum.

After a detailed discussion of the literature and the clinical aspects of the disease the author comes to the conclusion that the condition is an osteodystrophy characterized by the accumulation of excessive amounts of osteocalcareous substance in the bones. The latter may be deposited in its inorganic form or become transformed into osseous tissue. In the affected bones cellular activity is practically nil. The bone marrow gradually becomes converted into fibrous tissue, and a severe anemia results from bone marrow insufficiency.

No endocrine basis for the disease has been demonstrated. The hypertrophy of the parathyroids is probably secondary origin, occurring in response to the excessive deposition of osteocalcareous substance in the skeletal structures.

The cause of the disease has remained obscure. In Parenti's opinion the condition has a hereditary basis and is a congenital anomaly of the calcium regulating mesenchymal tissue. RICHARD E. SOMER.

Philpowsky, L. I: The Surgical and Neo-Surgical Treatment of Acute and Chronic Osteomyelitis (Die chirurgische und neochirurgische Behandlung der akuten und chronischen Osteomyelitis) *Hygiei u. Chir* 1935 26 144

This article, which is a practically complete review of the usual methods employed in the treatment of osteomyelitis in the past ten years shows that no single uniform method has proved generally satisfactory. This may be explained chiefly by the multiplicity of the clinical syndromes presented by the condition. The multiplicity is based in part on the constitutional reaction which in turn is related to the age of the individual suffering from the infection. However, territorial, climatic, and therapeutic influences also seem to play a contributory rôle.

as repeatedly reported, the infection runs a particularly severe course in certain regions. The character of the clinical course and the method of treatment to be used in a given case depend also on the site of the focus in the bone—whether it is situated near a joint or more toward the diaphysis and especially whether the course of the condition from the very beginning has had the distinct character of an acute severe infectious disease or has resembled that of a localized and more or less circumscribed bone disease. In cases of the latter type we are again confronted with a series of varying, partly productive and partly destructive sequelae.

In this article the author considers

- 1 The operative treatment of acute osteomyelitis
 - a Conservative (the purely soft-tissue operation)
 - b Radical (opening of the marrow cavity)
 - c Complete removal of the diseased portion of bone with preservation of the regenerative zones (subperiosteal resection), amputation, and exarticulation. As an intermediate measure between a and b the formation of drainage openings—primary or secondary drilling into the bone focus—may be considered.
- 2 The operative methods of treating chronic osteomyelitis
 - a Chronic osteomyelitis considered as a chronic phase of or a recurrence of the acute lesion
 - b Primary chronic osteomyelitis running a latent course and the primary chronic bone abscess
- 3 Chemotherapy alone and as a supplement to operative methods
- 4 Immunotherapy
 - a Vaccine therapy in various forms
 - b Autopyotherapy
 - c Serotherapy and hemotherapy
- 5 Irradiation therapy
 - a Roentgen irradiation
 - b Diathermy
- 6 Treatment of the articular complications

From his critical consideration of the individual methods of treatment the author draws the following conclusions:

The treatment should be a basically conservative procedure without opening of the bone, i. e., abscess incision, in children perhaps only puncture of the abscess. Serum and vaccine therapy should be employed from the beginning in every case, both the most severe as well as the most mild. In the latter type it should be employed also for prophylaxis even when osteomyelitis is merely suspected. The vaccine used should be one which does not cause a strong reaction. The part should be immobilized. Diathermy is at least worth trying. Sequestrectomy should be delayed as long as possible. According to experience, resection is not advisable in the acute forms. In the chronic forms it should be done only after treatment by acidification, and with vaccines,

roentgen irradiation, diathermy, radical clearing out and primary autoplasmic covering without drainage, or the use of cod-liver oil vaseline has been tried. Articular complications should be treated as conservatively as possible. The general condition should be improved by fresh air and sunlight.

The problem of osteomyelitis in the acute stage cannot be solved by operative treatment alone. Future development will be along the lines of immunotherapy. In support of this opinion the author reports a case of acute osteomyelitis of the humerus in a boy nine years old.

(FRAENKEL) HARRY A. SALZMAN, M.D.

Jaffe, H. L. "Osteoid-Osteoma" A Benign Osteoblastic Tumor Composed of Osteoid and Atypical Bone. *Arch. Surg.*, 1935, 31: 709.

This article is a report on five cases of a type of benign neoplasm of bone apparently not hitherto classified. All of the cases came to the author's attention in 1933. The patients were young, ranging in age from eleven to twenty-two years. The principal complaint was local pain, usually increasing and often severe enough to interfere with sleep. It was this symptom that caused the patients to consult a physician. The lesion originated uniformly in an area of spongy bone. Although it sometimes involved cortical bone, it never penetrated the periosteum. As observed roentgenographically, the pathological areas were roundish, clearly circumscribed, and confined within the bone. The lesions were small and closely similar in size. Two were about 0.5 cm., two were 1 cm., and one was 2 cm., in diameter. Operation was performed on the assumption that the condition was inflammatory—osteomyelitis or



Fig. 1. Roentgenogram showing the dense, homogeneous, circular shadow in the ungual phalanx. The bone has expanded. The proximal portion of the phalanx is sclerotic.



Fig. Photomicrograph (magnification $\times 5$) of part of the focus shown in Fig. 1. It is composed of highly calcified atypical bone which stands out clearly from the sclerosed perical bone.

an abscess of the bone—but no pus was found in any instance. Complete eradication resulted in the eventual disappearance of all symptoms without recurrence of the local condition.

The author discusses the possibility that the tumor may originate from inflammatory lesions, embryonic nests, and unfamiliar healing stages of giant cell tumors or cysts. He presents adequate reasons to eliminate these possibilities.

He concludes that the neoplasm is a benign bone tumor the distinctiveness of which has not hitherto been recognized. He designates it as an "osteoid osteoma." He believes that it should be regarded as a neoplastic growth for the following reasons:

1. It consists of osteoid and atypical bone which, without obvious cause, has displaced the bone that would normally occupy the region.

2. The growth of the lesion, though slow, is independent of that of the surrounding tissues and the surrounding bone responds merely by becoming sclerosed.

3. Microscopically the tissue of the lesion differs from that of the surrounding normal bone, but is itself homogeneous and consistently the same in every case.

The benign character of the tumor is evidenced directly in several ways. The neoplasm does not perforate the periosteum or infiltrate the soft tissues in the vicinity of the bone. Moreover in the reviewed cases it was always surrounded by encapsulating bone; it did not recur after removal, and there were no metastases.

Jaffe believes that a case described by Hitarot before the New York Surgical Society on December 11, 1929, as sclerosing osteomyelitis of the carpal scaphoid, belonged in the group under discussion. He cites also two other reports of lesions which he believes had some relationship to the lesion he discusses. The first was the report by Bergstrand in 1913 of 14 cases of what he described as "a peculiar

and probably not hitherto described osteoblastic disease in the long bones of the hand and foot. The second was an article by Herre (*Arch f Klin Chir* 1927 146 737) which describes a bone sequestrum in the process of being reincorporated into the basal phalanx of the ring finger.

NORMAN C. BULLOCK, M.D.

Moehlig, R. C., Murphy, J. M., and Reynolds, L. J.
An Attempt to Produce Paget's Disease by the Use of Anterior Pituitary Growth Extract and Parathyroid Extract. *Am J Roentgenol* 1935 34 465.

This article is a report on experimental work on dogs. Standardized preparations of pituitary and parathyroid extract were injected into the animals and records kept of the calcium, phosphorus, and phosphatase content of the blood. Before the experiments were begun roentgenograms were made of the bones.

In the case of the first dog, microscopic examination after the injection of 23,457 units of parathyroid extract and 347 ccm. of pituitary extract (growth hormone) over a period of two hundred and twenty-three days showed massive replacement of bone marrow by calcium deposits and the presence of calcium deposits in the medulla of the kidneys.

The second dog, after similar injections over a period of three hundred and sixty days, showed the same sort of calcium deposits in the bone marrow.

The third dog also showed these abnormal calcium deposits, but Dog 4, which received only the parathyroid extract, showed nothing abnormal except a few calcium deposits in the kidney.

The changes in the bone marrow were not sufficient to appear in the roentgenograms.



Fig. Dog 1. Replacement of bone marrow by calcium.



Fig 2 Dog 3 Calcium deposits in the follicles of the ovary

When glucose was added to the diet the blood calcium increased by an average of 3.15 mgm and the phosphorus decreased by an average of 0.23 mgm. The phosphatase also decreased in three of the four animals. The authors attribute the decrease in phosphorus and phosphatase to the parathyroid extract. They noted some resemblance between the action of this extract and that of insulin. In the experiments reported the blood sugar varied inversely with the blood calcium. A study of a small series of cases of Paget's disease revealed that 40 per cent of the patients had a familial history of diabetes and some of them had a low sugar tolerance. When the patients were put on a measured carbohydrate diet and given insulin, the symptoms of Paget's disease, such as "bone pains" in the head and limbs, were alleviated.

WILLIAM ARTHUR CLARK, M.D.

Campbell, W. C. An Analysis of Living Patients with Primary Malignant Bone Tumors. *J. Clin. Med.*, 1935, 105, 1496.

In fourteen cases of primary malignant bone tumors in which an apparent cure has been obtained there were ten osteogenic and four non-osteogenic sarcomas.

The patients who are living and well were treated for tumors of the following types:

- 1 Osteolytic sarcoma in childhood, none
- 2 Osteolytic sarcoma occurring in adult life, three. These three of nine adult patients with osteolytic osteogenic sarcoma are living and well twelve, twelve, and four years respectively after the treatment.
- 3 Primary chondromyxosarcoma, two. One is alive and well after eight and a half years, and the other after two years.

4 Secondary chondromyxosarcoma, two. The osteogenic sarcoma was apparently secondary to a pre-existing lesion in the bone.

5 Chondroblastic sarcoma, two

6 Chondrosarcoma, one

7 Osteoblastic osteogenic sarcoma, none

Of the patients with non-osteogenic periosteal fibrosarcoma, one, and of those with an endothelial myeloma (Ewing's tumor), three are living and well after eight, five, and four years.

Seven of the patients cured by amputation or excision had had previous operations.

Amputation proximal to the affected bone is advised. The fact that many of the living patients had had previous operations is an argument in favor of biopsy.

The prognosis becomes better with an increase in age.

Although Ewing's tumor occurs frequently in childhood, the prognosis is not so unfavorable as that of osteolytic or osteoblastic tumors.

ELVEN J. BERKHEISER, M.D.

Hellner, H. Bone Metastases of Malignant Tumors (Knochenmetastasen bösartiger Geschwülste). *Ergebn. d. Chir.*, 1935, 28, 72.

To combat the frequent incorrect diagnosis of bone sarcoma a knowledge of the extraordinarily varied manifestations of bone metastases of malignant tumors is necessary. According to Kolodny, one-half of all diagnoses of sarcoma are wrong. Apart from this consideration, the localization of malignant tumors in bones is of great theoretical interest.

In the general discussion the author first calls attention to the well-known tendency of carcinoma of certain organs to form metastases in bone, particularly carcinoma of the breast, prostate, thyroid, kidney, and lung. He states, however, that the ability of every growth to produce bone metastases is not to be doubted. The size and the treatment of the primary growth have no relationship to the formation of bone metastases.

Kienboeck divided bone metastases into (1) solitary discrete metastases, (2) a few sporadic foci, (3) numerous multiple foci, and (4) the extensive generalized form. Also of importance is their division into osteolytic and osteoplastic metastases.

Metastasis takes place by (1) the blood stream, (2) the lymph stream, and (3) direct invasion. Metastasis by way of the blood stream is not always due to an embolus in a terminal vessel. Sometimes it is the result of attachment of cells to a vessel wall. Metastasis by way of the lymph channels is of great importance in carcinoma of the breast and prostate. In these conditions the lymphogenic backflow is a factor. It must be borne in mind also that the regional lymph glands of a tumor are not always those which are closest to the neoplasm. Even skipping over of lymph glands may occur. The lymph-vessel arrangements of the bones have been clarified by research, especially the investigations of Kolodny and Kallus.

Bone metastases cannot be regarded as a merely mechanical process. A certain affinity of the tumor cells for the endothelial cells of the bone marrow and failure of the humoral protecting powers (cytolysis) must be assumed. The interaction between metastases and the bone tissue is evidenced by the occurrence of spontaneous healing of carcinoma metastases.

Osteoclastic and osteoplastic metastases are not basically different from each other. They are dependent upon disproportion between the rapidity of the growth of the metastases on the one hand and the defensive powers of the bone on the other. Perosteal and intervertebral disks are usually not destroyed by metastases.

In describing the clinical picture of bone metastases the author calls attention to the fact that the length of time between the appearance of the primary growth and the appearance of metastases usually ranges from one to two years. Hypernephroma and thyroid tumor metastases however constitute definite exceptions. The mildness of the complaints even in the presence of extensive metastases is frequently astonishing. The pains are often described as being of the rheumatic type and the incorrect diagnosis of arthritis is made frequently. The general roentgen diagnosis is based on the four types of reaction described by Kienboeck. Attempts to find a blood picture typical of bone metastases are in general to be considered unsuccessful, as are also attempts to differentiate between osteoclastic and osteoplastic metastases on the basis of the blood picture. This is evident from a tabulation of the blood findings in these cases.

In first place as regards frequency of bone metastases is carcinoma of the female breast. The marked variation in statistics regarding the incidence of metastases in this condition is to be explained by the wide variation in the extraneous circumstances under which the statistics were compiled. The reported incidence ranges from 4 to 50 per cent. Mentioned in order of decreasing frequency of involvement, the bones most often affected by metastases from carcinoma of the breast are the pelvis, spinal column, femur and shoulder girdle. Osteolytic metastases are typical osteoplastic metastases are rare. The author discusses the clinical picture and course of the metastases on the basis of his own observations. He states that the roentgen demonstration of bone metastases is limited. Metastases up to the size of a pea may escape recognition if they do not involve the cortex of the bone. Solitary metastases are very rare in carcinoma of the breast. The author believes that especially the rheumatic complaint and pains paroxysmal in origin caused by critical local hyperemia and circulatory disturbances may also play a part and finally there may be direct involvement of the emerging nerve bundles. He calls attention to the significant fact that the motor nerve paths are not affected. Parosteal fractures occur most frequently at the neck of the femur and in the vertebrae.

The reported frequency of carcinoma of the prostate ranges from 0.35 and 1.11 per cent. Tuckert himself believes that from 10 to 20 per cent of all prostatic hypertrophies are carcinomatous. The frequency of metastases is calculated at one fifth of all prostatic carcinomas. The localization of the metastases is similar to that of metastases from carcinoma of the breast. The metastases are most often of the osteoplastic type. This fact creates difficulties in the differential diagnosis from Paget's disease and sarcoma. As a rule however the absence of marked bony sclerosis, which is typical of extensive sclerotic, is prominent especially in osteolytic sarcoma, speaks against the diagnosis of sarcoma. For cases in which the clinical diagnosis between prostatic hypertrophy and carcinoma is doubtful, roentgen examination of the pelvis is recommended.

The hypernephroma, the theory of which is discussed briefly, have a very high rate of metastases. The reported incidence ranging from 33 to 60 per cent. The bones most frequently involved are the vertebrae, femur, skull, ribs and humerus. The blood and lymph streams are to be regarded as the pathways of dissemination. The solitary distant metastases formed by hypernephromas occur by way of the blood stream. Of clinical importance is the fact that in cases of bone metastases from a hypernephroma the primary tumor occasionally escapes observation. When hypernephroma is suspected, pneumomycelography should be included among the methods of examination of the urinary tract. Palpation of the bone tumor caused by the metastases, e.g. in the sternum, may lead to the correct diagnosis of osteoma. Vascularitis must be considered even in the performance of biopsy as a procedure may be followed by life threatening hemorrhage. However solitary late metastases are amenable to surgical treatment. Their surgical removal presents the prospect of radical cure. Operation is possible also for early metastases, but the result is uncertain. Hypernephroma metastases are quite refractory to radiation.

Of the malignant tumors of the breast, the peritheloma and especially the symphtoblastoma produce bone metastases in childhood. The metastases to the skull take their origin from the dura.

Thyroid tumors possess a definite tendency to form skeletal metastases. Cases of thyroid tumor producing bone metastases are divided into two groups. Group 1, belonging to the malignant group, includes all cases of a malignant tumor or only a simple locally benign tumor. In group 2, belonging to the benign group, the very beginning presents evidence of a malignant tumor. As regards the distribution of the metastases from all tumors are malignant. The metastases from a tumor of the thyroid are most often of the osteoplastic type. Metastases of the osteolytic type are very rare. The bones most often affected are the humerus, skull, femur. It is important to remember the fact that the tumors of the thyroid are a small series of true carcinoma. Nevertheless there are a

type of thyroid-gland disease—the metastasizing adenoma of the thyroid—which, according to Wegelin, is to be regarded morphologically as a small follicular adenoma and biologically as a carcinoma. The author cites the cases of two females, reported respectively by Alessandri and Goebel, in which operation was performed on metastases in the femur. One of the patients was still alive after nine years and the other after three years.

Metastases from tumors of the gastro-intestinal tract are both numerically and practically of less importance. Their reported incidence is between 1 and 2 per cent. Nevertheless it is necessary to think of the gastro-intestinal tract in searching for the origin of bone metastases. The primary tumors in carcinomas of the face, mouth, and neck, which as a rule metastasize sporadically, are always easily recognized.

Uterine and ovarian carcinomas lead most frequently by way of the lymph stream to metastases in the pelvis and spinal column.

Also mentioned are the bone metastases formed by malignant testicular tumors and bronchial carcinomas. Attention is called to the fact that clinical search for the primary tumor may be unsuccessful. Under such circumstances a biopsy should be performed, since only by this means is it possible to rule out a primary bone tumor and determine the proper treatment.

Sarcoma metastases play a considerably less important rôle than carcinoma metastases. Even osteogenic sarcoma forms bone metastases, but the Ewing sarcoma produces them more frequently.

In the final discussion of treatment the author emphasizes that the indication for operation is presented only in exceptional cases, practically only in cases of hypernephroma and thyroid tumor metastases. In cases of bone foci from other primary tumors operation is useless. Irradiation should be tried in every case. The best results are to be expected in isolated metastases from a primary tumor which has been removed surgically or is itself amenable to irradiation. In osteoclastic metastases, and with less certainty in osteoplastic metastases, the pain may be alleviated by irradiation. Prolongation of life is possible only in rare cases.

The article contains reports of a large number of the author's cases and illustrations.

(NESTMAN.) HARRY A. SALZMANN, M D

Brunschwig, A. Observations on the Administration of Large Doses of Calcium in Metastatic Carcinoma in Bone. *Am J Cancer*, 1935, 25: 721

Various authors have reported beneficial effects from the use of calcium in the treatment of malignant neoplastic disease, especially its inhibitory influence on tumor growth. Behan reported that calcium therapy is of distinct value in alleviating the pain of advanced cancer. Under such treatment he found it possible to reduce or even discontinue the administration of morphine for varying periods.

The author administered calcium in relatively large doses to a number of patients with advanced

malignant neoplastic disease of various organs. The results varied considerably. In some cases Behan's observations appeared to be confirmed, whereas in others there was no relief of the pain.

Brunschwig reports two cases of metastases to bones from carcinoma of the breast in which unexpected results were obtained. In both, intensive calcium therapy was the apparent cause of a temporary sclerosis of the skeleton with partial or almost complete filling in of many of the osteolytic lesions. The severe pain accompanying these lesions was greatly relieved for long periods. No opiates or other analgesics were administered during the periods of symptomatic improvement. In one case there was a return to normal physical activity for one and a half years. In neither case was roentgen treatment administered during or prior to the periods in which the temporary sclerosis of the skeleton occurred.

Brunschwig emphasizes that he reports these cases merely because of their unusual course as no conclusions may be drawn from such a limited number of observations. The diagnosis of metastatic carcinoma was a roentgen diagnosis only, but it appeared to him that under the circumstances no other condition could have caused the changes seen in the initial roentgenograms. NORMAN C. BULLOCK, M D

MacDermott, E. N. Two Cases of Hemangioma of the Voluntary Muscle with a Brief Review of the Literature. *Brit J Surg*, 1935, 23: 252

In one of the cases reported by the author the hemangioma occurred on the inner side of the calf of a woman, twenty-four years of age and in the other in the midthoracic region just to the right of the midline in the erector spinae muscles of a boy twelve years of age. In both cases excision was followed by a completely satisfactory result.

According to the 260 cases previously reported in the literature the tumor is usually adherent to the muscle and varies from a moderately firm to a fluctuant mass. On aspiration, blood is obtained. Of 63 cases in which a roentgen examination was made, phlebectasis were found in 34. The symptoms include pain, limitation of motion, loss of function or deformity, and symptoms due to pressure on vessels or nerves. The diagnosis was made before operation in only 12 per cent of the reviewed cases.

While the tumors are clinically benign, metastases never occurring and recurrence apparently developing only after incomplete removal, they exhibit a peculiar local malignancy, infiltrating the muscle and causing its degeneration. Another pathological characteristic is a tendency toward partial replacement of the originally angiomatous structure by fibrous or fatty tissue in the center.

In 62.5 per cent of the reviewed cases the condition occurred between the ages of eleven and twenty-six years. No muscle or muscle group is especially liable to involvement.

Excision is always indicated. If the tumor does not shell out readily a small margin of muscle should be removed. RUDOLPH S. REICH, M D

Busebaum, G.: A Contribution on Inflammatory Tumors Presenting the Picture of Malignant Tumors, with a Consideration of So-Called Giant-Cell Sarcoma of the Tendon Sheaths (Beitrag zur entzündlichen Tumoren unter dem Bilde bösartiger Geschwülste, mit Berücksichtigung der sogenannten Riesenzellgeschwülste der Sehnencheiden) 1935 Halle-Wittenberg, Dissertation

There is considerable literature on chronic inflammatory tumors of a non-specific nature. Characteristic of all observations is the fact that the tumor was never diagnosed clinically as of that type being always regarded at first as a malignant neoplasm, usually a sarcoma. The picture of malignancy was not presented even at operation, and the diagnosis of an inflammatory granulation tumor was not made until the tissues were examined histologically. In some cases even histological study is not sufficient for the differential diagnosis. In support of this statement the author cites carefully collected and studied reports in the literature and 2 of his own observations. The condition was not syphilitic or tuberculous, but an inflammatory proliferation of tissue from other causes which often could not be determined. The differentiation between sarcoma and granuloma is of great practical importance in avoiding an unnecessary mutilating operation. As the cause of the so-called "sarcoma" there are often found old small purulent foci, small sequestra, sporotrichoses, or an injury. Injury acts not only by awakening latent foci but also through the irritation produced by the extra-vascular blood.

The author then described in more detail the giant-cell sarcoma of tendon sheaths. According to Fleisig there is no record of an authentic case in which a so-called tendon-sheath sarcoma extended to other tissues or metastasized to glands and organs. Briefly, the giant-cell granulation tumors of the tendon sheaths are neoplasms ranging in size from that of a pea to that of an egg which have a lobulated structure and a yellowish-red speckled appearance. Microscopic examination shows no true infiltrating sarcomatous tissue but discloses lipid phagocytes, giant cells, and hemogenous pigment. The clinical course is always benign. The treatment should be extirpation of the tumor; never amputation.

Of 120 cases collected from the literature, the author discusses 8 in detail. He then reports 2 cases of his own from the Loeffler clinic. The latter were clinically quite similar. According to their clinical course the tumors were entirely benign although their macroscopic appearances suggested sarcoma. Histological examination showed one of them to be a sarcoma and the other a chronic inflammatory process.

In summarizing, the author states that according to observations reported in the literature and the first of the cases reported from Loeffler's clinic the giant-cell sarcomas of tendon sheaths are absolutely benign and should be removed surgically. A patient

with a giant-cell sarcoma of a tendon sheath is not suffering from a clinical sarcoma and should not be treated surgically for the latter condition. Clinically the terms "sarcoma" and "giant-cell sarcoma" are not applicable in such cases. Both of the Loeffler cases were so strikingly alike in findings and clinical course that, according to Seyler, they must be assumed to have had the same cause, namely an inflammation. As was first claimed by Fleisig, in 1913 the so-called giant cell sarcomas of tendon sheaths are granulation tumors and develop in the same way as "inflammatory tumors."

(Eckert) JACOB E. KLEIN, M.D.

Geschickter, C. F., and Lewis, D.: Tumors of Connective Tissues. *Am J Cancer* 1935, 5: 490

This article is based on a study of 313 cases of fibroma, 150 cases of fibrosarcoma, and 7 cases of fibromyxoma from the Surgical Pathology Laboratory of the Johns Hopkins Hospital, Baltimore.

Dermatofibromas (8 cases) occur in the skin as solitary benign tumors. They are sharply defined but not raised above the surface. The firm nodular growths are smooth, reddish-brown, and painless, never white, shiny and painful as are keloids. They are composed of dense, fibrous tissue without cells.

Keloids (125 cases) are due to fibrous hypertrophy of the corium usually at the site of an injury. They may be multiple because of a constitutional susceptibility of the patient. Their growth is slow, and they may disappear spontaneously. A hereditary tendency has been noted. In the 125 cases reviewed the peak of the age incidence was between the twentieth and thirtieth years. Negroes were affected about 6 times more frequently than whites. The growths are composed of swollen bundles of collagenous fibers which are vascular in the early stages but avascular later. Excision within the margin of the growth followed by irradiation has sometimes effected a cure.

Tenosfibromas (50 cases) occur on tendons and tendon sheaths, frequently on the flexor sides of the hands and feet. They are encapsulated and easily excised.

Basal fibromas (8 cases) which are composed of spindle-shaped fibroblasts, occur at the base of the skull and may invade the orbit and nasopharynx. In their treatment radon seeds and external irradiation are more practical than operation.

Benign fibromas (2 cases) may occur in the outer layer of the periosteum but are rare. In 1 of the reviewed cases the lower end of the femur had undergone pressure necrosis and the leg was amputated because malignancy was suspected. In the other case excision of the tumor followed by irradiation resulted in cure.

Dermoids (30 cases) occur in the abdominal wall beneath the rectus sheath. They are pure fibromas which are usually encapsulated and less than 5 cm in diameter but occasionally are large and infiltrating. Nineteen of the 30 patients whose cases are reviewed were women between the age of puberty and

the menopause. In all of the cases the growth was related to pregnancy or to the scar of an operation. The best treatment is radical excision.

Ovarian fibromas (100 cases) are found most frequently before the age of the menopause. They are firm rounded growths, usually about 5 cm in their greatest diameter. In most cases the tumor is unilateral and associated with a uterine myoma or a fibroma of the breast.

Twenty cases of visceral fibromas were included in the series. Four of these neoplasms were retroperitoneal, 2 occurred in the kidney capsule, 2 arose from the mesentery sheaths, 1 was in the wall of the stomach, 5 occurred in the deep structures of the neck, and 6 were in the shoulder and pectoral region. In 4 cases a fatal recurrence developed after excision.

Fibromyxomas are rare. Of those reviewed by the authors, 4 were found in the region of the liver, 1 occurred in a tendon sheath, and 1 was behind the peritoneum. These tumors are composed of spindle cells and contain large amounts of intercellular mucinous substance.

Fibrosarcoma (55 cases) may be either differentiated or undifferentiated. Those of the differentiated type have more or less collagenous intercellular material and are mildly malignant. Those of the undifferentiated type are composed of tightly packed spindle cells, are very malignant, and are rarely cured. They occur most frequently near the bones, joints, and tendons, but there is no new bone formation as in osteogenetic sarcoma. In 15 of the reviewed cases death occurred within two years after the initial treatment.

Of etiological interest is the finding of high concentrations of estrin, the ovarian hormone, in fibroadenomas of the breast.

WILLIAM ARTHUR CLARK, M D

Massart, R. Volkmann's Disease, Ischemic Contraction of the Flexor Muscles of the Fingers. Pathogenesis and Treatment (*La maladie de Volkmann, rétraction ischémique des muscles fléchisseurs des doigts. Pathogénie et traitement*). *Presse méd*, Par, 1935, 43, 1695.

In Volkmann's contracture the flexors alone or both the flexors and the pronators may be involved. The condition usually develops after trauma with fracture of the lower end of the humerus or of the bones of the forearm. It is much more common after supracondylar fracture than after diaphyseal fracture, and is often attributed to repeated futile, awkward, and violent attempts at reduction. For a long time it was believed that tightness of the cast was the factor responsible, but it has since been shown that Volkmann's lesion may develop in cases in which no cast has been used and even in cases in which there has been no fracture. Constriction caused by a cast has usually been due to the sudden development of circulatory disturbances at the site of the fracture. These might aggravate but would not cause Volkmann's disease. The condition which constitutes the primary factor in the origin of the

contracture seems to be an abundant intramuscular hemorrhagic infiltration of serosanguineous fluid rather than blood, which accumulates under a rigid aponeurosis. This interferes with the return circulation, causing functional and muscular changes. Moulouguet and Senéque cured a case by early aponeurotomy. In hemophiliacs, intramuscular hemorrhages have been known to give rise to Volkmann's lesion in the absence of fracture.

In the beginning of the disease the circulatory disturbances may be recognized from changes in the radial pulse and the findings of a comparative study of the oscillometric curves of the two sides. Arteriography will also supply information.

The onset may be sudden. As a rule it occurs from twenty-four to forty-eight hours after a supracondylar fracture and slowly and insidiously after a fracture of the forearm. In the former type the trophic disorders are numerous and severe. Boils leaving unsightly scars may develop. These should not be blamed on the surgeon treating the contracture as they are due to the circulatory disturbance causing the contracture. In some cases the nerve trunks remain intact, while in others nervous changes lead to sensory and motor disturbances. The intra-aponeurotic accumulation of serosanguineous fluid is determined not only by blood from a ruptured artery and hematoma, but also by circulatory obstruction, an ischemic phenomenon similar to that observed in pulmonary infarction. Nervous lesions (median, ulnar, and, rarely, radial) are commonly associated with the ischemic lesions. The areas of muscular sclerosis often correspond to adherent cutaneous cicatrices. The muscular changes are aseptic necroses rather than a retractile myositis. The contraction involves only the interstitial connective tissue and not the muscle fibers. In the beginning, the muscular contraction is reversible and curable and sclerosis may be prevented if vasomotricity is regulated by sympathectomy.

Treatment should be given early. Aponeurotomy has yielded good results. The aponeurosis should not be sutured or drained. In performing an aponeurotomy the surgeon may coapt the fragments if they are not already united and verify the condition of the nerve trunks. Perihumeral sympathectomy is efficacious if it is not undertaken too late. If the humeral artery has been injured or ruptured or is found thrombosed or empty, arterectomy is indicated. If the time has passed for early treatment, resection of the bones of the forearm may be done, but this is a difficult operation and apt to be followed by recurrence. Resection of the carpus as recommended by Pouzet is to be rejected especially in the cases of children. Tenoplasties are no longer used in the treatment of Volkmann's contraction. Platt obtained successful results by disconnecting the flexors and pronators from their humeral insertion. Depression of the epitrochlea has also been recommended, and several successful results from ionization have been reported. The use of traction apparatus, especially Michel and Masabau's modi-

fixation of the Mummien tourniquet is of value throughout the treatment.

In the discussion of this report FROELICH stated that in his opinion the contracture is usually due to the faulty application of a cast.

TAVERNIER said that, even in the cases of children he prefers resection of the wrist to resection of both bones of the forearm.

ROCHER expressed the opinion that the custom of fixing the arm with the elbow in an acute angle is largely responsible for the development of Volkmann's disease. He cited a case in which the condition recurred in spite of immediate favorable results from perihumeral sympathectomy.

EDITH SCHASCHKE MOORE

FRACTURES AND DISLOCATIONS

Compars, E. L. Growth Arrest in the Long Bones as a Result of Fractures That Include the Epiphysis. *J Am M Ass* 1935, 705, 140

Of 695 patients treated for fractures of the long bones at the University of Chicago Clinics in the period from October 1927, to May 1935 37 had fractures involving an epiphyseal line. The author presents a study of the latter with 9 illustrative case reports accompanied by photographs and roentgenograms. Of the fractures in children that involved the growth cartilage and were seen before deformity had occurred and were followed for more than six months with roentgen examinations, 18 of 19 cases, or 95 per cent, showed growth disturbances. Compare therefore feels that growth disturbances from epiphyseal injury is more common than is usually recognized.

BARBARA B. STEDON, M D

Mannheimer, E.: On the Treatment of Compound Fractures (Zur Behandlung der offenen Frakturen). *Arch und Tsdtsch* 1935, p. 307

The question of the treatment of compound fractures has been a matter of serious discussion especially since the World War. Nevertheless unanimity as to the best method of treatment has not yet been reached. The author has studied the voluminous literature on the subject. He cites seventy five authors, of whom the majority were not German. He comes to the conclusion that most authors regard "débridement and primary suture" as the most important procedure. Further the majority emphasize that it is highly desirable for the injured person to be given suitable medical treatment as soon as possible. Mannheimer designates as particularly valuable the paper presented by Roux and Vincigu at the French Surgical Congress in Paris in 1935. He then reports the results of the method of treating compound fractures in the Serumfimerlaurette in the period from 1924 to 1933.

For compound fractures of the skull, rules for treatment cannot be set up. The author discusses in detail the results of the treatment of compound fractures of the extremities. As routine treatment the

following procedure is of value: exposure of the fracture ends, excision of the skin edges and damaged soft parts, cleansing of the hematoma, removal of bone fragments, clearing and smoothing of the bone, rinsing of the wound with chlorammon, reduction of the fracture ends, and primary suture of the skin.

These operative measures immediately follow the roentgen examination. For osteosynthesis cutout is used. Only in exceptional cases such, for example, as fractures of the patella, is other material selected. Depending upon the circumstances, a fenestrated plaster cast or traction by Kirschner wire is used. The author classifies the results according to the suggestions of Boehler as follows: (1) perfect healing, (2) severe disturbance of the wound, (3) death, primary secondary to wound infection, or secondary without relation to the injury, (4) primary amputation, and (5) secondary amputation.

One hundred and thirty-two cases are reported. Of these, 60.7 per cent were in the first group and 23 per cent in the second. Eight tenths per cent of the patients died from infection and 2.5 per cent from causes unrelated to the accident. In the fourth group were 15 per cent of the cases, and in the fifth group, 4.5 per cent.

In another table the author shows that the results became noticeably better with the introduction of a consistently carried out technique and treatment by surgeons experienced in the technique. However the primary requisite still remains the earliest possible admittance of the patient into a clinic after the accident. A delay of even a few hours may have very unfavorable consequences.

(GIERLACH) BARBARA B. STEDON, M D

Bede, F.: Observations on the Operative Treatment of Fresh Fractures (Beobachtungen zur operativen Behandlung der frischen Knochenbrüche). *Arch f Klin Chir* 1935 183, 33

Operative treatment of fractures has for a long time been employed by older surgeons, but in recent times has been further improved through refinement of diagnosis by roentgen examination and by the perfection of a special operative technique. Nevertheless the non-operative method still remains the usual procedure and operative interference can be considered only when, in spite of one or repeated attempts at reduction under general, spinal or local anesthesia or later in traction apparatus, a displacement of the fragments persists and is so extensive that presumably it will result in considerable hindrance to the usefulness of the injured extremity.

The term osteosynthesis should be used only for the open treatment of fresh fractures within a period in which consolidation of the fracture cannot yet have resulted. Of the osteosyntheses on which this article is based none as undertaken before the lapse of one week or later than two weeks after the injury. Longer postponement of a necessary operation renders the intervention unnecessarily difficult and disturbs the beginning of the proper healing process.

The open reduction of fresh fractures demands the strictest asepsis. The view that osteosynthesis makes an open fracture out of a closed one is wrong as every compound fracture is infected from the start whereas the open reduction of a closed fracture is an entirely aseptic procedure.

In the treatment of compound fractures a prophylactic roentgen irradiation has proved of value. In the undertaking of osteosynthesis one should be very sparing in the use of foreign material, often the purpose can be accomplished by a simple hooking. If this does not yield rigid reduction screws or plates may be used.

The fracture hematoma plays an important part in the spontaneous healing of fractures. In order to take advantage of the extravasation of blood the author operates on principle in a bloodless field so that after re-establishment of the circulation a copious secondary effusion of blood develops and assists healing of the fracture. Interposed soft parts are usually larger than expected, but within certain limits do not disturb the consolidation of the bone. However, if there is extensive interposition of muscle, tendons, nerves, or displaced bone fragments osteosynthesis is indicated. Roentgen control is important in every fracture. Also, after the undertaking of an osteosynthesis the callus formation must be followed by repeated roentgen examinations.

The technique of osteosynthesis is described in detail, and the use of spinal anesthesia is recommended for osteosynthesis of the lower extremities. An encircling wire ligature is to be considered only for spiral fractures and fractures with marked displacement of the pointed ends. Transverse fractures should not be held together with cortical sutures, but must be plated. Bone sutures find their use in avulsion fractures and fractures in the neighborhood of joints. Soldering of the wire has been given up, instead, Borchardt's drilling has been used with good results. Only rustless wires or plates were used. In fractures into or near joints and epiphyseal separations, especially at the knee joint, open reposition often gives better results than conservative methods. In the after-treatment, long plaster splints and other splint dressings are used most frequently until sufficient callus formation and consolidation are shown in the roentgenograms. Circular plaster is not employed. In general, prolongation of the reparative process was not noted in operatively treated fractures, but neither was healing obtained in a shorter time. Severe postoperative infection was seen in only two compound fractures. In one case, with massive skin and soft-tissue injury of the leg and opening into the ankle joint, amputation was necessary. In a case of fracture in the vicinity of the elbow joint a good result was obtained in spite of the formation of an abscess and drainage. A counter-sunk Lane plate required removal after the lapse of six months because a fistula formed after another blow against the tibia. In another case a pressure sore with a fistula developed after several months over the bone above a sunken wire suture. This

healed after removal of the wire. Seventy-two osteosyntheses were performed, all with good results.

(BODE) BARBARA B STIMSON, M D

Cornell, N W Fractures of the Base of the Radius in Adults *Arch Surg*, 1935, 31 897

This article is based on a series of 155 fractures of the base of the radius produced by indirect violence in 140 adults, all of whom were examined by the author. The length of time that elapsed between the fracture and the follow-up examination averaged sixteen months and in no case was less than three months. A carefully taken history, thorough physical examination, and roentgenography of both wrists constituted the follow-up examination. Actual measurements of shortening of the radius, widening of the wrist joint, and tilting of the distal radial fragment were made on the roentgenograms by simple methods which are described and illustrated in the article.

The author presents a classification based on the theory that these fractures are dependent on the amount and direction of the force applied.

I Simple transverse fractures

II Comminuted transverse fractures

- A Extension or flexion force (scaphoid and semilunar), Y or T types
- B Abduction force (scaphoid)
- C Adduction force (semilunar)
- D Avulsion force (intermediary fragment, styloid fracture)
- E Lateral splitting force due to the thrust of the proximal radial fragment into the distal radial fragment

Tables are included in the article to show the types and age incidence of the fractures in the series of cases, the extent of arthritis, the reasons for unemployment, and the anatomical, cosmetic, and functional results.

The average age of the patients was forty-four years, with the greatest number between the ages of forty and sixty years. Twenty-nine per cent of the fractures were of the simple transverse type. Of the 140 patients, 71 per cent had returned to their previous occupation at the time of the follow-up examination. Arthritis was recognized and recorded in approximately 53 per cent of the cases. The average permanent disability was 20 per cent. Shortening of the radius averaging $\frac{1}{8}$ in. occurred in 78 per cent of the cases, widening of the wrist joint in 75 per cent, and posterior tilting of the distal radial fragment in 76 per cent. Fracture of the ulnar styloid was noted in 72 per cent and showed non-union in 60 per cent. "Cosmetic and functional pathologic changes, when present, could always be traced directly to an underlying anatomic deformity."

The treatment consisted of immediate reduction under anesthesia and immobilization by anterior and posterior moulded plaster-of-Paris splints with the wrist slightly flexed and supinated and the hand

in ulnar deviation. Finger motion should be started at once, but as a general rule the wrist should be kept immobile and protected for at least three weeks.

BARBARA B. SIMMONY, M.D.

Kapeli: The Operative Treatment of Recurrent Semilunar Cartilage Dislocation (Operative Behandlung der habituellen Kniegelenksverrenkungen). *Verhandl. Aach. chir. Ges.* 1935, p. 14.

More than sixty methods of treatment have been devised for the treatment of recurrent semilunar cartilage dislocation. The author deals with the questions as to which of these procedures are especially useful and whether in general, surgeons might not limit themselves to one or two. The cases reviewed include several of permanent (chronic) dislocation but these are not discussed in much detail.

The treatment of recurrent semilunar cartilage dislocation may be divided into two parts: reduction of the acutely occurring dislocation and treatment of the dislocation as an independent lesion. Reduction is usually accomplished without difficulty. It is done most easily with the hip flexed and the knee extended (with the patient in the sitting position). Under gentle pressure at a point medial to the lateral border of the patella the semilunar cartilage slides back into place. Some patients are able to effect the reduction by themselves. Occasionally there seems to be a hereditary tendency toward such dislocations.

Correct after-treatment is important not only after the first dislocation. Frequently there are tears on the medial side of the capsule of the knee joint which may extend not only through the connective tissue but also through the synovial layer of the capsule into the joint. When such tears do not heal correctly the capsule remains weak at that point. Also in some cases, there may occur secondary contractures on the lateral aspect which will favor recurrent dislocations. Under such conditions proper treatment is especially important. This includes immobilization—possibly with the application of a bandage for from four to eight weeks—careful massage, and finally equally cautious active exercises.

In the treatment of semilunar cartilage dislocation as an independent condition the author has had no experience with bandages. He believes that, in general, such treatment is unsatisfactory.

In the determination of the indications for operation the age of the patient and his occupation are important. Persons with an occupation demanding physical activity come to operation much more willingly than the person with a sedentary occupation. The operation may be performed on the bones, muscles and tendons, capsule and ligaments, or combinations of these parts. The purpose of the most common bone operations is to raise the external condyle of the femur anteriorly. This decreases the tendency toward semilunar cartilage dislocation. Up to the present time the operations performed most often have been capsulorraphy and capsule reduplication. Both of these are operations on the

soft parts and are quite inadequate. The purpose of muscle operations is to change the sites of insertion toward the medial side. The muscle capsule plastic is discussed in detail. Attention is called also to other operative methods.

In conclusion the author reports on forty-four operations performed on thirty-five patients. Thirty-eight were done for recurrent dislocation. As the Krogus method gave the best results, this procedure is particularly recommended by Kapeli.

(HAMMEN) HARRY A. SALERNTY, M.D.

Kapeli, O.: The Operative Treatment of Habitual and Permanent Dislocation of the Patella, Particularly by the Methods of Krogus and Goldthwait (Die operative Behandlung der habituellen und permanenten Luxation patellae, im Besonderen nach Krogus und Goldthwait). *Acta chirurg. Scand.* 1935, 77, 201.

The constantly increasing number of new operations for dislocation of the patella has resulted in uncertainty with regard to the method of choice. To determine the results of different operations the author studied cases from six different services. These included cases of permanent and habitual dislocation.

He concludes that permanent dislocation of the patella should be treated by femoral osteotomy, mobilization of the extension apparatus, and medial transplantation of the patellar ligament. In habitual dislocation of the patella the Krogus method alone or combined with Goldthwait's plastic operation on the patellar ligament gives excellent results. In some cases the Krogus operation must be performed as an intra-articular procedure. Goldthwait's method supplemented with capsulorraphy gives good immediate results, but its end results are not so satisfactory as those of the Krogus operation. It is possible that in cases in which the Krogus operation cannot be performed the Huebner plastic operation should be done instead of the Goldthwait operation. Occasionally both operations are unsuccessful.

The author discusses some of the clinical features of the lesion.

Lessermant, M.: Fracture of the External Condyle of the Tibia. Open Reduction Maintained by a Bone Graft. Result After Ten Months (Fracture du condyle externe du tibia. Réduction ouverte maintenue par greffe osseuse. Résultat après dix mois). *Bull. et mém. Soc. nat. de chir.* 1935, 6, 1199.

The author reports the case of a patient who complained of disability in the right knee following an injury sustained one month previously. The knee was in slight recurvatum and marked valgus deformity and was very painful on movement. Roentgenograms showed a fracture of the lateral tibial condyle with depression of the fragment. At operation, the fragment was elevated and fixed in place by means of an osteoperiosteal graft taken from the internal surface of the tibia. A cast was then applied and maintained for 1 month. The patient now walks without pain or limp motion at the joint.

nearly normal, and there is neither varus nor valgus deviation

BARBARA B STIMSON, M D

Lucca, E Uncomplicated Inferior Marginal Fractures of the Tibia The Uncomplicated Anterolateral Marginal Fracture (Le fratture marginali isolate inferiori della tibia Frattura marginale antero laterale isolata) *Ann ital di chir*, 1935, 14 337

The author reviews the anatomy of the ankle joint and the inferior tibiofibular joint and discusses the mechanics of the region

He classifies marginal fractures of the lower end of the tibia into posterior, anterior, and anterolateral fractures All these fractures may occur as isolated injuries, but usually occur in conjunction with malleolar fractures The pure anterolateral and posterior marginal fractures must be distinguished respectively from fractures involving the posterior or anterior lips of the inferior tibiofibular joint.

Lucca cites twenty-two cases of isolated posterior marginal fracture of the tibia reported in the literature He gives the mechanism as indirect violence with the foot in hyperextension or hyperflexion In hyperextension it is the impact of the posterior astragalus articular surface against the posterior tibial margin upward In hyperflexion it is the force of the astragalus attempting to dislocate backward and impinging against the posterior tibial lip Rarely, the fracture is caused by a violent pull on the posterior tibial ligament

The symptoms and signs are somewhat characteristic They include external ecchymosis, tenderness along the tendon of Achilles, and pain which is most marked on flexion and extension, and minimal on lateral movement There is no gross bone deformity The foot is in equinus because of spasm of the calf muscles Lateral roentgenograms will confirm the diagnosis

The treatment indicated is immobilization for a short period followed by physical therapy The prognosis is excellent

Lucca notes that anterior marginal fractures are also frequently associated with malleolar fractures

and are less common than posterior marginal fractures He cites thirteen cases of isolated fracture reported in the literature and discusses the variety of fracture line, with or without involvement of the anterior face of the malleolus He states that if the anterior capsule and malleolar ligament are torn, an anterior subluxation of the foot can occur He describes the mechanism, attributing it to forced flexion of the foot with violent impact of the tibial margin against the neck of the astragalus or hyperextension with avulsion of the tibial margin by the anterior ligaments In the latter case the fragment is usually small

The clinical symptoms are few The swelling hides the tendons and is very tender, particularly over the tibial margin The anteroposterior diameter of the ankle is increased Active and passive movements of the ankle in flexion and extension are painful, and weight-bearing is impossible The return to function after brief immobilization followed by gradual mobilization is rapid and aided by physical therapy The prognosis is excellent

Isolated anterolateral marginal fractures are very rare Lucca cites the literature He gives a detailed clinical report of a case with roentgenograms When this fracture, as is usually the case, is associated with a low fibular shaft fracture or with Dupuytren's fracture, there is usually a diastasis of the mortise with displacement of the fragment and subluxation of the foot forward and sometimes upward When it is an isolated fracture it is usually without displacement

Lucca discusses the mechanism, which he considers to be forced abduction Clinical diagnosis is impossible without roentgenograms Roentgenograms should be taken in mid-external rather than anteroposterior or lateral rotation

Lucca advises plaster immobilization for eight days (mid-leg to toes) with the foot at a right angle and in slightly external deviation This should be followed by gradual mobilization and physical therapy for a month, at the end of which time weight-bearing can be begun The prognosis is excellent for complete and rapid restoration of function

BARBARA B STIMSON, M D

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Mahler, G. K.: Roentgen Therapy of Thrombo-Angiitis Obliterans (Buerger's Disease). *Am J Roentgenol* 1935, 34, 370

The author remarks that any method of treating thrombo-angiitis obliterans that relieves the pain and prevents lameness and loss of limbs deserves serious consideration. He notes that the end results have commonly been gangrene accompanied by much suffering and necessitating amputation. In histological studies, Craig and Kernohan found more proliferation of the living endothelial cells of the arterioles and small arteries in thrombo-angiitis obliterans than in Raynaud's disease. They noted no evidence of an acute or chronic inflammation. The sympathetic ganglia present definite changes which have justified removal of the diseased ganglia surgically or by irradiation.

The specific cause is still undetermined. Bacteriological studies have not been conclusive. There is much to be said in favor of the theory that infections and toxins are causative factors because the lesion in the tissues of the vessels is inflammatory. The progression and recurrence of the disease in the affected vessels also suggests an inflammation of low grade.

The author reviews briefly the history of roentgen therapy of thrombo-angiitis obliterans. This condition was first treated with the roentgen rays by Phillips and Tunick. Since their preliminary report in 1925 on the results in fifty cases, reports have been made by many American and French observers. It was found that irradiation applied over the extremities alone did not produce satisfactory results. On the basis of the fact that some patients suffering from thrombo-angiitis obliterans were relieved of their symptoms following operation on the sympathetic ganglia and others were relieved following supra-splenectomy some roentgenologists gave their treatment over the region of the sympathetic ganglia while others gave it directly to the region of the suprarenals. Desplats and Langroun obtained good results from irradiation over the suprarenals after a double sympathectomy had failed to relieve the pain or the trophic conditions.

Of the characteristic symptoms, pain is usually the first to appear. It may be slight at first, but gradually becomes more severe and ultimately is excruciating and continuous. In a small minority of cases pain is absent. Pronounced vasomotor and trophic disturbances supervene, with intermittent claudication, erythromelia, ischemia, cyanosis, ulcers, and finally gangrene.

From a review of the cases treated, the author concludes that it is advisable to treat the patient over the sympathetic ganglia indicated by the loca-

tion of the disease, probably three times a week until a total of $\frac{3}{4}$ to 1 erythema dose has been given over each portal or over the whole area. Such a series may be repeated after an interval of one or two months if necessary.

Pain is relieved within about two or three weeks after the beginning of treatment, and at times very promptly. As a rule the patients return to their work in from five to six weeks. Of the special symptoms, intermittent claudication disappears satisfactorily within two weeks for the patient to walk without distress and in a large proportion of cases had disappeared completely within six weeks. Circulatory and trophic disturbances are relieved in from four to six weeks. Phlebitis shows improvement early. Active signs of inflammation disappear with supervening signs of resolution. When absent at the beginning of the treatment the pulse was not recorded as re-appearing in any of the cases. This suggests that the occluded artery is not restored to normal, and that the improvement is due to the establishment of collateral circulation. Ulceration shows a tendency to improve within a few weeks and to disappear within a few months. Chiefly because of the relief of pain, marked improvement in the general condition occurs rapidly.

In the discussion of this report, Lasega adds that since the physiology of the vasomotor innervation is not clearly understood it is difficult to explain why roentgen irradiation produces such beneficial effects. He holds that in thrombo-angiitis obliterans the effects are due to a depressing action of an over-irritated sympathetic nervous system. He stated that he has treated the sympathetic nerve ganglia with very satisfactory results. Treatment over the sympathetic ganglia indicated by the location of the disease usually brings the desired results. If the results are not satisfactory it may be advisable also to irradiate the ganglia situated higher as they may be in the stage of over-irritation.

Golden reported that in the Vanderbilt Clinic cases of thrombo-angiitis obliterans are studied for evidence of spasm by testing the skin temperature with a thermocouple after anesthetization of the posterior tibial nerve. If there is no evidence of spasm, indicating a seriously advanced organic disease of the vessels, the case is considered not amenable for roentgen therapy. Golden believes that the results of radiotherapy in such conditions must be interpreted with considerable conservatism.

Photomacrae said that their results have not compared favorably with those reported by Mahler. The condition under discussion does not lend itself to experimental proof. In experiments on animals, irradiation does not produce demonstrable effects in the sympathetic innervation.

LANGER agreed that it is impossible to compare a normal animal or the behavior of its sympathetic nervous system under roentgen treatment with an abnormal animal or with the effects of roentgen irradiation on a proved over-irritated nervous system such as is present in thrombo anguitis obliterans. He believes that if such an over-irritation of the sympathetic nervous system could be produced in animals and the animals irradiated, positive proof would be found that roentgen rays affect such an over-irritated sympathetic system.

HERBERT F. THURSTON, M.D.

Billi, A. Considerations on the Histological Findings in the Blood Vessels of an Extremity Amputated Because of Spontaneous Gangrene (Considerazioni su reperti istologici vasali in un arto amputato per gangrena spontanea) *Clin. chir.*, 1935, 11, 619.

The case reported was that of a woman thirty-four years old who had Geisboeck's disease. For two months prior to her admission to the hospital she had suffered from severe pain in the left foot. The foot became cyanotic, edematous, and eventually gangrenous. The erythrocyte count was 7,000,000, the hemoglobin, 110, and the blood calcium 13.5. Parathyroidectomy was done. The excised parathyroids were found normal. This operation was followed by only temporary relief. When the pain and cyanosis recurred a Pirogoff amputation was done first and a lower thigh amputation later.

Examination of the amputated leg showed the vessels to be adherent to the surrounding structures. Small, hard, firm nodules were felt along the walls of the arteries. In the wall of the anterior tibial artery, near its origin, there was a 10-mm nodule which almost completely closed the lumen and when sectioned was found to contain a yellow waxy substance. No thrombi were discovered in the arteries.

Microscopic examination revealed proliferation of the endothelium of the vasa vasorum which almost occluded the lumina. The nodules were the result of an eccentric thickening of the intima. In their centers degenerative changes and deposits of calcium were found.

The author reviews the literature on the condition and discusses the various surgical methods of treatment.

PETER A. ROST, M.D.

Rosell, E. So-Called Traumatic Thrombosis in the Axillary Vein (Ueber sogenannte traumatische Thrombose in der Vena axillaris) *Scensk Läkartidn.*, 1935, p. 935.

The patient whose case is reported was a 26-year-old barrel worker with a past history of tuberculous peritonitis and gonorrhea. After an uneventful, non-febrile bronchial catarrh he noticed one day, soon after working a steam apparatus which he held with his right arm abducted, a swelling dilatation of the cutaneous veins, and cyanosis of that arm. These extended to the clavicle. In the right axilla a spindle-shaped cord was palpable. In the bed of the axillary

vein no cause for the development of a thrombus could be discovered. The blood pressure fell 8 to 20 mm. Eighteen days after the beginning of the first symptoms the patient had completely recovered.

The differentiation between phlebitis and thrombosis is very difficult in many cases. It can be done best perhaps by phlebography with abrodil or uroselectan. As the axillary vein in a relatively short course takes up a large number of large tributary veins, congestion in its field is more quickly noticeable than in the region of the femoral vein in which congestions occur more easily. Perhaps even spasms of the walls of the axillary vein can produce a congestion.

Traumatic thrombosis of the axillary vein occurs most frequently in young, healthy, muscular men and in the right arm. The left hand is affected usually in left-handed persons. As a rule the thrombosis follows an especially severe strain with the arm in the abducted position. According to its extent and completeness, collateral circulation develops in the shoulder and the lateral thoracic regions. The prognosis under conservative management is usually good. To date, no fatalities have been reported. Emboli are rare. (R. GUTZEIT) PHILIP SHAPIRO, M.D.

Strömbeck, J. P. The Late Results of Embolectomy Performed on Arteries of the Greater Circulation. *Acta chirurg. Scand.*, 1935, 77, 229.

In a series of 327 operations performed in Sweden in the period from 1912 to 1932 for the removal of emboli from arteries of the greater circulation, 63 per cent of the patients died in the hospital, 18 per cent were discharged benefited after amputation, and 19 per cent were discharged with good circulation. Of those discharged with good circulation, three-fourths were alive one year after the operation, one-half after three years, one-third after five years, and one-eighth after ten years. The length of the survival period seemed to depend particularly upon the character of the cardiac affection, the age of the patient, and the tendency toward the formation of new emboli. There is a striking tendency toward cerebral circulatory disturbances (probably embolism in most cases) and the formation of emboli in the viscera and extremities long after the first embolism.

Of the patients whose cases are reviewed, working capacity was best in those who had sufficient vitality to survive the operation for a fairly long period. Of the patients who lived more than three years after a successful operation, about 30 per cent had rather good working capacity, but 20 per cent were entirely unable to work. Of the patients who died less than three years after a successful operation, about 10 per cent were able to work rather well for some time, but at least 70 per cent were quite incapable of working.

The local result in the portion of the body operated upon was in most cases very good. Small areas of necrosis, sensory disturbances, or peroneal paresis occurred in one-eighth of the cases, and mild sub

jective symptoms such as numbness and paresthesias is about half.

BLOOD; TRANSFUSION

Bogdan, A. I. A Case of Hemolytic Shock Cured by the Hesse-Filatov Method (Ein Fall von hämolytischen Shock, durch die Methode von Hesse-Filatov geheilt). *Zentralbl f Chir* 1935, p. 1935

Hemolytic shock, which is very dangerous, may follow blood transfusion if the blood groups of the donor and the recipient do not agree. Incompatibility leads to peripheral vasoconstriction, especially in the kidneys. This was shown by experiments in Leningrad during 1932. Causal therapy consisting of the immediate transfusion of compatible blood has been successful in eleven cases (Hesse-Filatov).

The author reports the following case:

A fifty-two-year-old woman with a severely bleeding gastric ulcer received 200 c cm. of citrated blood from her daughter. The transfusion was well tolerated. The donor and the recipient were believed to belong to Blood-group A. Three days later a second transfusion was given. The new donor belonged to Group A. The transfusion of 200 c cm. of blood was followed by severe hemolytic shock with restlessness, headache, dyspnea, and fecal and urinary incontinence. The symptoms were relieved by the immediate transfusion of 100 c cm. of blood from the first donor; the patient's daughter. Temporary hematuria followed. It was later found that the patient and her daughter belonged to Group B instead of Group A. Roentgen examination showed that the patient's gastric ulcer healed rapidly.

According to investigations by Hesse, Rys, Stroukova, Vredenskiy and Bogdanov the transfusion of incompatible blood has a favorable effect on the healing of ulcer as it stimulates the reticulo-endothelial system.

(E. WILLIAMS) LEO M. ZIMMERMAN, M.D.

Helmer, E. W., and Sokolow, N. L. Plasma Transfusion as the Method of Choice in the Treatment of Hemolytic Shock (Plasmatransfusion als Methode der Wahl in der Behandlung des hämolytischen Shocks). *Zentralbl f Chir* 1935, p. 753

Hemolytic shock is characterized by a very rapid fall in the arterial blood pressure and a persistent spasmodic condition of the vessels in the splanchnic region, especially of the renal vessels. The consequent ischemia of the kidneys results in faulty secretion and thereby leads to death. According to Wesselkja, Lindenbaum and Kartaschewski, this vascular spasm is not caused by the action of the central or peripheral nervous system, but is due directly to the effect of the hemolyzed plasma on the vessel walls.

While Hesse and Filatov recommend large transfusions of preserved blood for the relief of hemolytic shock, the authors believe that they have discovered the means for combating such shock in the trans-

fusion of plasma. They were led to this conclusion by the following three theoretical considerations:

1. The agent employed for the correction of acute hemolysis must be absolutely harmless and must not itself increase the hemolysis in any way (destruction of erythrocytes in blood transfusion).

2. The treatment must be given as quickly as possible. In this respect also the transfusion of plasma has advantages over the transfusion of blood.

3. Preserved plasma of Group AB is a universal source of plasma for transfusion which has an advantage over the universal blood donor of Group O in the limitlessness of the transfusion dose.

The author reports a case of very severe gastric hemorrhage in which a transfusion of 200 c cm. of blood which had been preserved in the refrigerator for seven days and mixed with an equal amount of 0.9 per cent sodium chloride solution was followed by severe hemolytic shock. The condition was very serious, being characterized by dilatation of the pupils, a pulse of 420, dyspnea, collapse, a blood pressure of 70/45, a marked desire to urinate without the passage of urine, and severe pain in the loins. The hemolytic shock was at first not recognized as such, being attributed to the perforation of a gastric ulcer. Laparotomy was therefore undertaken at once and gastric resection was done. No ulcer or perforation was found, but bleeding gastric polyps were discovered. Three hours after the development of the shock a transfusion of 400 c cm. of preserved plasma was given. The patient recovered and was discharged from the hospital after fourteen days.

The hemolytic shock in this case is attributed by the authors to improper preservation of the blood with dilution by solution which decreased the resistance of the erythrocytes, a high titer of the donor's serum, and the decrease in the quantity of the recipient's blood.

(WILLIAMS) PHILIP SHAPIRO, M.D.

LYMPH GLANDS AND LYMPHATIC VESSELS

Fehr, A. The Treatment of Secondary Carcinomas from Lymph Nodes by the Parkeon Method (Ueber die Behandlung der sekundären carcinomatösen erkrankten Lymphknoten nach dem Parkeon Verfahren). *Chirurg*, 1935, 7, 545

The "Parkeon method" originated primarily in the Radium Institute, but also in the Cancer Institute at Villejuif. In the former a 2-gm. and an 8-gm. radium apparatus are available. The 8-gm. cannon has been assembled recently chiefly for the treatment of carcinoma of the cervix, since, in the opinion of Regaud, the 4-gm. apparatus is inferior in its action to roentgen irradiation. The 2-gm. cannon is used for inoperable tumors of the oral cavity and the region of the neck. In the Radium Institute the ambulatory patients are treated during the day and the bed patients at night. In Villejuif, roentgen irradiation predominates. The 5-gm. cannon is used only during the day and then only when spe-

cial indications are presented. According to Regaud, X-rays are particularly suitable for large surfaces and teloradium should be used when greater penetration over a smaller surface is desired. Cases which do not seem amenable to radical operation are given preliminary irradiation. It has been found in Paris also that following this, the tumor masses became smaller and their margins sharper. However, cure of secondary adenopathies is rare. Since 1930 Regaud has given up irradiation following radical operation. His reasons for abandoning it are similar to those of Wintz and Juengling. "The irradiation is given in a region in which the presence or absence of disease is unknown. The region that must be irradiated is often very extensive, as, for instance, the breast. If cancer cells are present, their radiosensitivity is unknown. Therefore one is entirely in the dark as to the proper dosage. It has been shown that inadequate or excessive doses may be deleterious. If recurrences appear in the irradiated area, further irradiation treatment promising successful results cannot be carried out. The statistics supporting prophylactic after-treatment can be matched by those of the Radium Institute for cases in which no after-irradiation was used." However, Regaud follows up his cases at regular intervals. Ledoux-Lebard and other radiologists favor prophylactic postoperative irradiation. Regions in which recurrences are most frequent are given the most intensive irradiation. Depending on their location, lymph nodes are either treated simultaneously or are extirpated surgically, from two to three weeks after irradiation of the primary tumor.

With regard to the individual gland regions, Fehr refers to the important presentation of Rondiere. In the main, he arrives at the following conclusions. Squamous cell carcinomas of the skin form glandular metastases late. Therefore it is sufficient to watch

the glands. Melanocarcinoma demands early and radical extirpation of the regional nodes. Irradiation therapy promises little success. In cases of epithelioma of the oral cavity the lymph nodes should be removed surgically. Irradiation of the neck region with full dosage in the absence of glandular involvement may lead to the formation of metastases in the glands by impairing the defense mechanism.

Regaud found no glandular metastases in 60 per cent of cases of carcinoma of the lip nor in from 25 to 30 per cent of cases of carcinoma of the tongue. Lacassagne found metastases in only 3 of 100 cases of carcinoma of the lip in which the glands were not treated. Radical extirpation requires resection of the sternocleidomastoid muscle and both jugular veins. Cure cannot be expected from irradiation alone. In carcinoma of the breast, only individual cases on the borderline of operability are given preliminary irradiation. Operation is delayed for from three to four weeks because of the increased tendency toward hemorrhage. Regaud advises against the implantation of radium tubes into the breast or the operative wound. Desrive says that in carcinoma of the penis the regional lymph glands are enlarged in 75 per cent of cases but are involved by metastasis in only from 20 to 30 per cent. Regaud attributes failure of irradiation to the accompanying infection. Therefore he recommends operation. In tumors of the testicle, the histological findings are decisive. Radiosensitive seminomas and their regional lymph nodes are irradiated, whereas resistant tumors and malignant teratomas are extirpated. According to Laborde, vaginal carcinomas are treated preferably by roentgen or teloradium irradiation. In inoperable carcinomas of the stomach telecurietherapy has sometimes yielded good results.

(PLATE) LEO M. ZIMMERMAN, M.D.

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE TREATMENT

Hickman J., Livingston H., and Davies, M. E.: *Surgical and Anesthetic Risk in Cardiac Disease. Arch Surg* 935, 81-97

The authors reviewed a series of 336 cases of cardiac disease because of the diversity of opinion regarding the risk of surgical procedures and anesthesia in such cases. They divided them according to the type of cardiac lesion. All types of surgical procedures were performed.

In the 91 cases of hypertension there were 10 deaths, but only 3 of the latter were due to cardiac disease. Two of the deaths were due to pulmonary complications. Thirteen patients made a poor recovery. Most of this group were elderly.

There were 18 cases of arteriosclerosis with 3 deaths, none of which was due to heart disease.

Ethylene oxygen anesthesia and local anesthesia were used most frequently. There was only 1 poor result from these types of anesthesia.

In 60 cases of compensated valvular lesions there was 1 death, but it was unrelated to the cardiac disease. Three patients had postoperative cardiac symptoms, but all recovered. Inhalation anesthesia was used in 47 cases, local anesthesia in 23 cases, and spinal anesthesia in 1 case.

In 44 cases of compensated myocardial disease there were 4 deaths. These occurred from three to five weeks after the operation and were not related to the cardiac disease. A variety of types of anesthesia were employed. There were 3 cardiac and 3 pulmonary complications.

In 36 cases of thyrotoxic heart disease there were 3 deaths, but only 1 was due to the cardiac disease. Ten patients had cardiac symptoms and 4 had pulmonary symptoms after thyroidectomy. Ethylene-oxygen was used most often. The authors regard it as superior to nitrous oxide oxygen.

In 30 cases of cardiac decompensation not due to thyroid disturbance there were 4 deaths, 1 due entirely and 3 due in large part to the cardiac disease. Twenty three major and 7 minor operations were performed, the majority under ethylene-oxygen anesthesia. Local anesthesia was used in 25 cases.

There were 10 cases of congenital heart disease with no deaths. In 1 of these cases cardiac complications lasted several days following ether anesthesia for tonsillectomy.

In reviewing the cases of coronary occlusion the authors emphasize that a proper pre-operative diagnosis is of the greatest importance and surgical procedures should be avoided during attacks. In 8 cases of coronary occlusion, 10 major and 3 minor procedures were done with 1 death. Ethylene-oxygen

anesthesia was used in 6, local in 3, spinal in 1, and ethylene-oxygen plus ether in 1. Of 3 patients with angina pectoris, 1 died and 1 made a poor recovery.

There were 4 cases of heart block with no deaths or postoperative complications.

In the 1 case of acute pericarditis, death resulted after 5 operative procedures.

In 31 cases of miscellaneous cardiac lesions there were 2 deaths unrelated to the heart or lungs.

In summarizing the authors say that following 345 operations in 336 cases there were 6 deaths due to cardiac disease and 2 due to pulmonary, a mortality of 3 per cent. There were 27 patients who recovered but suffered from postoperative cardiac complications. As diseased hearts cannot tolerate a lack of oxygen or asphyxia, the use of nitrous oxide and oxygen should be avoided. There were 12 postoperative pulmonary complications. The incidence of pulmonary complications was lowest after local or ethylene-oxygen anesthesia.

The authors conclude that angina pectoris, coronary occlusion, decompensation, hypertension, and thyrotoxic heart disease are the most serious cardiac diseases.

HARVEY S. ALLAN, M.D.

Cotteran, R. W.: *Some Postoperative Changes and Their Prognostic Significance* (Ueber einige postoperative Veränderungen und ihre prognostische Bedeutung). *Yord and Tschir* 935, 9-169.

The author reports studies carried out by clinical methods to determine the salt and water condition after operation. Soon after every major operation there is first a strongly negative salt and water balance due to the loss of blood and fluid, with possibly a capillary dilatation which increases the tissue plasma requirements. There is also a toxic, water-during tissue injury. These conditions were present in a case of carcinoma of the stomach coming to operation. Because of the elevation of the skin temperature which follows anesthesia and persists for about five days, there is an increase in the irradiation of heat and therefore of water elimination due to evaporation. A quantitative determination of the water consumption after gastric operations and appendectomies is presented graphically. From these curves it is seen that, during the first days after an operation, water consumption is greatly increased and salt consumption is considerably increased. However, both decrease suddenly between the fifth and sixth days. The author's experiments, as well as those of other investigators indicate that a considerable portion of the retained salt is fixed in the operative wound and that 10% of this fixation plasma exudes into the tissues. The exhaustion of the plasma and other fluid deposits

increases the water needs of the organism as a whole and salt fixation is increased simultaneously. A decrease in the protein content may act similarly.

A valuable indication of water and salt deficiency in the organism is a fall in the total chloride content of the blood with a reduction in the quantity of plasma. For determination of the water and salt relationships the author recommends whole-blood determinations. When, in the presence of a decrease in the chloride content of the blood there is no excretion of salt in the urine, the condition of the patient must be considered grave. This was illustrated in a case of severe icterus of pregnancy which necessitated choledochotomy.

Circulatory disturbances are also intimately related to the salt and water balance. Circulatory disturbances in the splanchnic area may diminish the blood supply of the intestines and thereby cause disturbances of intestinal absorption. For the establishment of a normal circulation of the blood and thereby of normal nutritional and absorptive conditions in the bowel, intravenous injections of salt solution are recommended. These injections likewise introduce water which causes an increase in the blood volume, relaxation of arterial contractions in the splanchnic region and, finally, re-establishment of a normal circulation with normal nutritional and absorptive conditions in the intestines.

For the prevention or reduction of the described postoperative disturbances of the water and salt metabolism, the author recommends the copious administration of fluids, salt, and carbohydrates before operation. At the same time the diet should be as liberal as possible, and only enemas should be used to evacuate the bowels. In cases of kidney and heart disease, control of the salt balance is particularly important. Before major operations, a subcutaneous injection of 1 liter of salt solution should be given. About twelve hours after the operation another such injection should be given, making a total, during the first day, of 2 liters of fluid and 18 gm. of sodium chloride. In the presence of ileus, 40 c.cm. of a 10 per cent salt solution should be given intravenously two or three times at intervals of from four to six hours. On the second, third, and fourth days after operation, 1 liter of salt solution together with 1 liter of 5 per cent glucose solution should be given subcutaneously. Simultaneously, the sodium-chloride excretion in the urine should be controlled. The artificial administration of salt should be continued until the patient receives sufficient salt in his food.

(HAAGEN) LEO M. ZIMMERMAN, M.D.

ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Zur Verth, M. The Question of the Excision of Wounds (Zur Frage der Wundausschneidung) *Chirurg*, 1935, 7, 473

The author deals mainly with the time and the technique of operation for different types of injuries

Friedrich's determination of the germination period as ranging from six to eight hours has been found generally correct. However, every hospital must determine the maximum length of time during which primary suture after wound excision is still permissible in the types of injuries it receives for treatment. This period of time ranges from six to twenty-four hours. It is shortest in cases of serious wounds such, for example, as bite wounds, and longest in those of benign injuries.

A prerequisite for the excision of wounds is complete suppression of pain. This is obtained best by conduction or infiltration anesthesia. The excision is begun by separating the edges of the wound by means of tenacula introduced deeply. The instruments employed should be replaced as often as possible by freshly sterilized instruments. Whether the continuously sterile electrical knife prevents necrosis is still to be proved. In certain injuries failure to excise the wound is to be regarded as an error. Among such injuries are fresh wounds with foreign bodies, the bed of which can be excised, lacerated wounds, and injuries of the walls of body cavities, especially in the skull, chest, and abdomen. Severe crushing injuries are best treated according to von Bergmann's method and, when possible, excised in addition. However, in such injuries wound suture is an error. In cases of severe stab wounds an incision should be made around the wound, the puncture tract removed to the depths, and the opening left to granulate. This treatment is indicated also for bite wounds. In cases of injuries to small joints, a deep incision should be made around the wound within from six to eight hours after the injury and the wound closed only by suture of the skin. In cases of wounds of larger joints the excision and suture should be begun at the joint capsule. Tangential gunshot wounds are usually amenable to excision. The treatment of shrapnel wounds depends upon the conditions found in the given case.

(DRUEGG) CLARENCE C. REED, M.D.

Seeger, S. J. The Treatment of Burns. *Texas State J. M.*, 1935, 31, 488

The author reviews the theories advanced to explain the severe constitutional symptoms following burns, and the development of the tannic acid method of treating wounds since Davidson's introduction of that method in 1925.

In spite of the fact that the tannic acid method of treating burns has been widely adopted, the nature of the tanning agent has received little attention except for modification of the strength of the solution. Davidson suggested the use of a 2.5 per cent solution, and since his report other investigators have suggested solutions varying from 2.5 to 10 per cent. A 10 per cent solution was suggested on the basis of the assumption that it would act more effectively as a tanning agent. It has been satisfactorily demonstrated that the distribution of tannin is most effective in solutions of from 2 to 5 per cent. In increasing concentrations the rate of combination of tannin

at the surface is so rapid that it soon produces a tanned membrane which is impermeable. All solutions which have been advocated contain only tannic acid and water. The tannic acid used is the U. S. P. preparation.

Tanning is an extremely complicated process and one which has been the subject of a great deal of investigation on the part of chemists in the leather industry. There are many substances which may be used to effect tanning and the U. S. P. tannic acid which is derived from nut gall has many properties which make it less efficient than others which are available. The solutions advocated by Davidson and others are highly acid, having a pH value of from 0.9 to 3.16. The effect of the pH value of tan liquors on the fixation of tannin by tissue proteins has been studied in industry by Wilson and others, as has also the effect of concentration, temperature and kinds of tannins. All of these factors affect the rate of diffusion. It has been demonstrated that in highly acid solutions the surface of the skin undergoes a rapid tanning which renders it almost impermeable to the tannin which remains in the solution, and the fibers in the interior swell considerably. If in the tanning of hides, the hides are left long in this condition, especially in warm liquor the collagen fibers hydrolyze and the skin is damaged beyond recovery. In a series of experiments on rabbits and guinea pigs, Seeger determined that the degree of edema produced in the tissues by solutions of tannic acid in the acid ranges and the marked disruption and disorganization caused thereby can be very definitely demonstrated. A heavy and rapid fixation of tannin on the surface and swelling of the tissues were always observed when solutions in the low pH ranges were used. When the solution was alkalinized to secure a normal pH a milder tanning of greater penetration was obtained and the process was accompanied by much less edema. Since the loss of plasma into the tissues is an important element in the severe reaction to extensive burns, there is ample practical and experimental evidence to prove that this loss will be augmented by the use of highly acid solution as dressings. In addition, the burned tissue will be more efficiently and extensively fixed by the use of neutral solutions because of the greater penetration of the tannin. As was previously noted, weakly alkaline solutions have the theoretical advantage of backing the activity of intracellular proteases which are the supposed toxic agents in burns. Some of the commercial tannins, such as Cutch extract, which is derived from *Acacia catechu* has the advantage of producing a much milder reaction than tannic acid (U. S. P.). Cutch extract which contains 60 per cent of tannin, has the added value also of being inexpensive which is of special importance when large quantities are used in the treatment of patients in a tannic acid bath. A 5 per cent solution of Cutch extract has a pH of 3.16. The following formula may be used in making up a solution of normal pH: 5 gm. of Cutch extract, 2 gm. of sodium carbonate (monob. dried 34.5% acid) and

lytical reagent (satisfactory) and 500 c cm of water. To make a solution of tannic acid (U. S. P.) of normal pH dissol. 0.3975 gm. of pure anhydrous sodium carbonate and 25 gm. of tannic acid in water and dilute to 500 c cm. Solutions of tannic acid should always be freshly made up. This can be done easily if weighed out quantities of tannic acid and sodium carbonate in separate tightly stoppered bottles are kept on hand.

The author emphasizes the importance of securing an epithelial covering of granulating wounds at the earliest possible time. According to his experience the most impressive results of the tannic acid method of treatment are the relief of pain and the cure of which patients suffering from serious burns may be handled.

Seeger has noted no reduction in mortality which can be attributed to use of the acid. In 360 cases of burns admitted to the Milwaukee Children's Hospital and treated by various methods there were 30 deaths. The mortality for the series was therefore approximately 8.3 per cent. In 107 cases treated by the tannic acid method there were 23 deaths, a mortality of about 21.5 per cent, and in 172 cases treated by other methods, there were 16 deaths, a mortality of about 9.3 per cent. Of the more seriously burned patients, 72 had burns involving over 50 per cent of the body surface. Forty-seven of these were treated with tannic acid and 25 by other methods. Of those treated with tannic acid, 23 (49 per cent) and of those treated by other methods, 23 (54 per cent) died. Of the patients treated with tannic acid, 10 had burns involving from 30 to 50 per cent of the body surface. Of these 5 (50 per cent) died. Twenty-one had burns involving over 50 per cent of the body surface. Of this group, 13 died, the mortality being therefore about 62 per cent. The average age of patients with burns of over 50 per cent was three and one fourth years. The time of death is of interest in connection with the theories which have been advanced relative to the cause of the reaction to severe burns. Of 37 fatal cases with involvement of over 50 per cent, 23 were treated by the tannic acid method and 14 by other methods. Of the patients treated by other methods, 9 (64 per cent) and of those treated with tannic acid, 7 (30 per cent) died within the first forty-eight hours. In the cases treated by other methods there were no deaths between the second and the ninth days, of the patients treated with tannic acid, 5 (23 per cent) died between the third and the fifth days. Forty-nine per cent of the deaths in the cases treated by the tannic acid method and 36 per cent of those in the cases treated by other methods occurred after the ninth day. If other factors were comparable, it appears that the effect of the tannic acid method of treatment was to reduce the mortality during the first 48 hour period. When this method was employed a greater number of patients were carried through the immediate acute reaction to the burns to the stage of bacterial sepsis, and pneumonia at a later stage.

Abel, J. J., and Hampil, B. Researches on Tetanus IV Some Historical Notes on Tetanus and Commentaries Thereon *Bull Johns Hopkins Hosp, Balt*, 1935, 57 343

Considerable disagreement exists in regard to the nature of tetanus. According to the theory most widely accepted, the condition is solely a disease of the central nervous system and the permanent rigidity of muscles so frequently seen both in clinical cases and experimental animals is maintained by a steady discharge of efferent impulses from hyperexcitable centers stimulated by a constant inflow of proprioceptive and other types of afferent impulses. This theory does not explain satisfactorily the frequent appearance of rigid muscular contractures localized to the region of the original site of the infection or the fact that these local contractures can occur before reflex jerks or convulsions make their appearance.

The authors believe that the toxin of tetanus acts directly on the voluntary muscles of the body, irrespective of the pathway by which it reaches them. The action is a graded one, varying in degree with the number of "muscle units" that have responded to it in accordance with the "all or none" law. The toxin elicits at first a hardly demonstrable stiffness of the muscles, which passes gradually into the well-known extreme stage of unyielding rigid contracture in which the affected muscles can no longer respond to voluntary impulses and no longer become flaccid after section of their motor nerves. Every stage of contracture, inclusive of the terminal one, is due, not to the action of the toxin on central motor nuclei, but to its direct action on muscles. Death is due, not to central paralysis of respiration, as has been commonly assumed, but to suffocation caused by rigidity of all muscles concerned directly or indirectly with respiration. When once the muscles have absorbed more than an ineffective minimal amount of toxin during the period of incubation, treatment with antitoxic serum is powerless to prevent the appearance or retard the progress of muscle contractures.

The common practice of administering hypnotics to reduce the number of reflex spasms or convulsions is of little value in abolishing the rigidity of the abdominal, neck, and back muscles and the muscles of respiration which occurs late in the course of the disease. Such rigidity can be induced by subcutaneous, intramuscular, or intravenous injection of toxins.

The authors state that the intracerebral or intraspinal method of injecting antitetanic serum is not only unnecessary but also useless as a curative method. Neither of these methods is of greater prophylactic value than the intravenous injection of an equal amount of serum. If the intraspinal or intracerebral methods of injection appear to produce beneficial results, they do so only because the injected serum is rapidly and completely transferred to the general circulation.

ARTHUR S. W. TOLROFF, M.D.

Warembourg, H., and Driessens, J. Increase of Polypeptides in the Blood in Tetanus (Hyperpolypeptidémie au cours du tétanos) *Presse méd, Par*, 1935, 43 1601

Warembourg and Driessens report three cases of tetanus which were fatal in spite of intensive treatment with specific serum. In the first case the symptoms of tetanus subsided, but the patient died with symptoms of acute uremia. Symptoms of uremia developed before death also in the two other cases.

Vaccarezzi found a definite increase in the blood urea in thirty-two of thirty-seven cases of tetanus. In the authors' cases also there was a definite increase in the blood urea with values ranging from 1.30 to 5.05 gm. The residual nitrogen (the difference between the total non-protein and urea) was also high. Further blood studies showed that, at least in two of the cases, this was due to an increase in the polypeptides of the blood.

The authors describe their technique for determination of the polypeptides in the blood. Under normal conditions the values for the polypeptides vary from 50 to 60 mgm per liter. In the authors' two cases in which this determination was made the values were 287 and 313 mgm respectively. One of the authors, who had studied the polypeptides of the blood (plasma) for many years, found only five cases with such high values during that time. All of the patients with such high values died with symptoms of severe toxemia. These findings are additional proof of the severe disturbance of nitrogen metabolism produced by tetanus.

In the authors' two cases of tetanus in which the marked increase of the polypeptides of the blood were demonstrated, autopsies showed subacute congestive lesions of the kidneys and liver—lesions of the type that are found in various infectious diseases, acute poisoning by phosphorus, and auto-intoxications such as eclampsia. It is evident that such lesions would result in marked interference with the process of elimination. In tetanus there is undoubtedly an increased tissue destruction due to the muscular hyperactivity. This is intensified by the administration of large doses of serum (a foreign protein) and by certain hypnotic drugs employed in the treatment of tetanus. Specific treatment must be employed in tetanus, but the possibility of the deficient elimination of urea and other nitrogenous products must be recognized and measures taken to combat it as well as to overcome the infection.

ALICE M. MEYERS

Hadenfeldt, C. The Treatment of Furuncles of the Lip (Die Behandlung der Lippenfurunkel) 1934. Kiel, Dissertation.

The problem of the treatment of furuncles of the lip is still strongly disputed. The difference of opinion is based on the question whether operative or conservative treatment should be given. After a detailed discussion of the anatomical peculiarities of the lips and the pathogenesis of lip furuncles, the author presents a review of the development of

treatment of the latter. This shows that, as is well known, the management has become more and more conservative. Worthy of note recently are the results of abort-wave therapy. However, there are still eminent surgeons who advocate energetic operative treatment. The author cites Stach, Demel, and Helndl. According to reports to date, detoxication seems to be indicated and to play a very important rôle in septic processes.

The author has reviewed the clinical material of the Clinic of the University of Kiel for the period from 1917 to 1932. He divides this period into the following three subperiods: (1) From 1917 up to the end of 1924, when operative treatment was preferred; (2) from 1925 to 1929 when conservative treatment was in strong competition with operative treatment and roentgen irradiation was also employed; and (3) from 1929 to 1932 when conservative treatment was the procedure of choice.

A total of sixty-nine cases were treated. Two of the patients were moribund when first seen. Of the remaining sixty-seven, twenty-seven were treated surgically. Of the latter seven (39.9 per cent) died. Of the thirty-three patients who were treated conservatively, 3 (9 per cent) died. Of the twenty-one patients treated in the third period, only one (4.76 per cent) died. The various operative methods are well-known procedures. The conservative treatment preferred since 1929—the third period—was irradiation with the x-ray lamp supplemented with the application of pure ichthylol. The ichthylol was applied thickly. The dressings were changed once or twice daily. Irradiation with the x-ray lamp was given several times daily, for from three quarters of an hour to an hour. When, in spite of this treatment, an incision was necessary it was made with the electric knife (high-frequency knife). The cosmetic results were also better than those obtained by operative treatment.

The author emphasizes that it is of the greatest importance for the general practitioner to recognize the danger associated with even the smallest furuncles and to instruct his patients regarding the seriousness of such lesions.

(GERMANY) PHILIP SCHMIDT, M.D.

Lyons, C.: Immunotransfusion and Antitoxin Therapy in Hemolytic Streptococcus Infections. *J Am Med Ass* 1935 105 973

Hemolytic streptococci produce disease by virtue of their ability to invade the body tissues and to produce toxins. These are separate qualities requiring separate antibodies for their effective neutralization in the body. Hemolytic streptococcus infections are of three clinical types: septic, toxic, and both septic and toxic. The septic manifestations of the infection are local cellulitis or abscess, lymphangitis, lymph-node inflammation and suppurative, a swinging "pocket-fence" temperature, chills, and a positive blood culture. The toxic elements of the infection are an erythema, sustained elevation of the temperature and a persistently rapid pulse.

The author reports three cases to show:

1. That the invasion of the organism may take place with considerable local reaction but with only slight manifestations of toxemia. This condition may be overcome by increasing the amount of antibacterial antibodies.

2. That considerable toxemia may occur with only a slight local reaction. This may be overcome by increasing the amount of antitoxin in the blood.

3. That when considerable local reaction (invasion) takes place in association with toxemia the use of antitoxin will control only the toxic manifestations of the disease and will not influence the bacterial invasion. To control the latter it is necessary to increase the amount of antibacterial antibodies.

Therapeutically potent antitoxins for most cases may be selected by the Schultz-Charlton test of specific blanching. When injected in an adequate amount the antitoxin may be expected to reduce the toxemia, lower the pulse rate and temperature, and blanch the rash.

To destroy the organism and thus prevent further invasion requires phagocytosis. The forms of streptococci virulent for man possess distinctive cultural characteristics, develop capsules in young cultures, and resist phagocytosis in blood that does not possess the type specific antibacterial antibody in the serum. This antibacterial antibody may be produced by injecting living streptococci into mice. At the present time such an antibody is not available commercially. However, the author found that certain individuals have a sufficient amount available in their blood for the transference of an adequate quantity to the non-toxic individual with beneficial results. This procedure is spoken of as "immunotransfusion." The method of determining the presence of the anti-bacterial antibody in the blood is as follows:

About 8 c. cm. of blood are withdrawn by aseptic venipuncture and defibrinated by shaking in a flask with glass beads. Then, 0.25 c. cm. of blood is measured into a pyrex glass tube 5 cm. long and 9 mm. wide. 1 drop (about 0.03 c. cm.) of a young culture of the streptococcus to be studied is added, and the tube is sealed in an oxygen flame and rotated for thirty minutes at sixteen revolutions per hour at 37 degrees C. The tube is then flamed and broken open and drop of the contents is smeared as a blood film. The blood film is stained with Wright's stain and examined with the oil-immersion lens. A count is made of the number of intracellular streptococci contained in twenty-five polymorphonuclear leucocytes and the percentage of cells taking part in the phagocytosis is noted. A control slide is usually made from a similar preparation in infant's blood, but after a little experience this control may be replaced by cultural tests.

The bacteria for the phagocytic test are prepared by inoculating 1 drop of a sixteen-hour broth culture into 4 c. cm. of 50 per cent horse-serum peptonized water and incubating until the first clotting occurs—usually for from two to four hours.

In the selection of donors for immunotransfusion the blood serum from each of the prospective donors is centrifugalized free from cells. To 0.25 c cm of the patient's blood is added 1 drop of a given donor's serum. Tubes are so prepared for each prospective donor. The bacteria are added as before and the test is repeated. The slide showing the greatest amount of phagocytosis indicates the desirable donor.

M E LICHTENSTEIN, M D

ANESTHESIA

Woodbridge, P D. Recent Experiences and Present Trends in Anesthesia. *Surg Clin North Am*, 1935, 15: 1513.

During the last few years spinal anesthesia has been used in between one-fifth and one-sixth of all cases coming to operation in the author's clinic. The variation from year to year has been less than 3 per cent. Woodbridge uses spinal anesthesia regularly for abdominal operations lasting not over one and one-half hours which are performed on adult patients who are in good condition. When the dose can be kept small or the area to be anesthetized does not extend above the umbilicus he frequently employs it also for patients who are not in the best condition when its use will greatly facilitate the surgical work. He believes that in the use of cyclopropane we have a satisfactory means of controlling wretching during spinal anesthesia. He emphasizes that all patients under spinal anesthesia should be constantly watched by an experienced anesthetist.

A report covering over 1,000 spinal anesthetics induced with cyclopropane is now in process of preparation. In the use of pantocaine Woodbridge has experienced considerable difficulty in obtaining anesthesia as high as desired. However, since he has employed a special technique the results have been better. Nupercaine has not yet been evaluated by him. During the last year or two he has used regional anesthesia less frequently as a primary method, employing it in only 2.5 per cent of his cases.

Of all the operations done at his clinic, approximately one-sixth are done under spinal anesthesia, one-fifth under local infiltration anesthesia, and one-half under inhalation anesthesia. Of the inhalation anesthetics, over 90 per cent are induced with gases (with or without ether) given by the carbon dioxide absorption method. The outstanding advantages of this method are that breathing is much quieter, the abdomen is quieter, the patient's energy is conserved, loss of heat and fluid in the exhaled gas is minimal, the cost of the anesthesia is less than that of anesthesia induced by other methods, and the gases are not thrown out into the room in large volume. The author describes the machine he prefers and discusses the points which should be noticed particularly in the purchase of a circuit absorption apparatus. He uses the intratracheal route in about 7 per cent of his operations or about 11 per cent of all inhalation anesthetics. Practically always, the carbon dioxide absorption method is employed with it.

Woodbridge believes that cyclopropane threatens to usurp for itself a large part of the fields of all other commonly used anesthetics with the single exception of cocaine. In some cases it has given him trouble with laryngeal stridor, but he believes this will be largely eliminated if high concentrations are avoided. Divinyl ether has been found useful for producing brief, moderately deep relaxation. It has been given by the open drop method as well as by the gas machine, as an adjuvant to other drugs. Woodbridge does not use it for operations lasting over an hour. He believes that further investigation of the toxicity of trichlorethylene is necessary. Avertin fluid has entirely replaced ether for rectal administration in his clinic. Woodbridge never attempts to produce complete anesthesia with it. He finds it especially useful for long orthopedic and neurosurgical operations. Evipal as an intravenous anesthetic has been found useful for painful dressings, laryngoscopic examinations and treatments, and orthopedic manipulations. It appears to produce sleep rather than anesthesia.

Woodbridge orders preliminary narcotics for each patient individually according to age, sex, weight, nervousness, temperature, and metabolic rate, the anesthetic to be used, and the operation to be done. He prefers nembutal and describes its use and dose in combination with other drugs. He employs atropine only before ether, divinyl ether, or trichlorethylene. Cormaine has been given intravenously to an occasional patient who, weakened by a severe disease or shock-producing operation, has stopped breathing during or after anesthesia.

EMIL C. ROBITSHEK, M D

Valdes, U. The Obligations and Duties of the Anesthetist (Obligaciones y deberes de la anestesta). *Rev de cirug, Hosp Juarez, Mex*, 1935, 601.

This article reports the instructions given to nurse anesthetists of the Hospital Valdes. The responsibility of the anesthetist for the success of the operation and the life of the patient is emphasized. A detailed description is given of the anesthetist's table and its supplies. Attention is called to the importance of having everything always in the same place so that when, for example, a stimulating injection is necessary the anesthetist will be able to find it immediately and mechanically without looking for it. The anesthetic should be given slowly and gently so that the patient will fall into a tranquil sleep without excitement. During the operation the patient should be absolutely quiet without any movement of defense, vomiting, or coughing, and the natural color of his skin should be maintained. He should come out of the anesthesia with the same tranquillity, sleeping naturally for the first few hours after the operation.

The anesthetist should be responsible for seeing that the patient gets plenty of water after the operation. An enema of 300 c cm of physiological salt solution should be given. If the operation has been

very serious, the subcutaneous or intravenous injection of physiological salt solution may be necessary. The urine should be sent for examination for the first three days. The anesthetist's responsibility does not end until all of the anesthetic has been eliminated from the patient's body. Besides giving the details of anesthetic technique the article is devoted to emphasizing that the anesthetist's duty does not begin and end with the operation; that the preliminary and after-care is also his responsibility insofar as it is related to the effects of the anesthetic.

ANDREW GORE MORGAN M.D.

Rapoport, B.: A Comparison of Postoperative Complications Following General and Spinal Anesthesia. *New England J. Med.* 1935 3 35

Postoperative pulmonary complications such as pneumonia and atelectasis may occur after spinal anesthesia as readily as after general anesthesia. There are other conditions besides the anesthetic agent which led to postoperative complications.

Institutional statistics indicate wide variations in the incidence of postoperative complications. Proper appraisal of statistics requires consideration of the physical condition of the patient before operation and the use of supplementary general anesthesia in addition to the spinal anesthetic.

The author believes that there are hardly any contra-indications to spinal anesthesia. Hypertension and hypotension are not contra-indications. Healthy individuals undergoing an operation under spinal anesthesia will develop fewer complications than those who receive a general anesthetic. A series of 65 cases (238 those of males and 387 those of females) were studied for complications arising from 205 general anesthetics and 330 spinal anesthetics. The incidence of complications arising from general anesthesia was 5 per cent and that of complications arising from spinal anesthesia only 0.6 per cent. Of the complications following general anesthesia 7.4 per cent, and of the complications following spinal anesthesia, 5.7 per cent, were pulmonary. The incidence of death due to the anesthetic was 3.4 per cent in the cases of general anesthesia and 3 per cent in those of spinal anesthesia. It should be remembered also that 35.5 per cent of the patients receiving a spinal anesthetic had definite preoperative medical ailments, whereas of the patient receiving a general anesthetic, only 7 per cent had such ailments.

Spinal anesthesia is the ideal anesthesia for genito-urinary and orthopedic operations, and for all operations below the diaphragm. Postoperative nausea and vomiting can be controlled by the preoperative administration of amylal or nembutal together with morphine. If supplementary anesthesia is required, nitrous oxide oxygen, local infiltration with novocain, or slow drop ether will be found satisfactory.

The author reports fatalities in his hospital series of 1,402 spinal anesthetics. Since the abandon-

ment of the sitting position for injection of the spinal agent there have been no deaths.

BENJAMIN G. P. SWARTZ M.D.

Hursey, F. V.: Estimation of and Methods of Maintaining Surgical and Anesthetic Risks and Postoperative Complications in Surgical Diseases of the Biliary Tract. *Lancet* (London) 1935, 4 415

The success of surgery of the biliary system depends on the physiological status of the liver. The liver plays an important rôle in many vital functions such as (1) the formation and storage of bile, fibrinogen, and glycogen; (2) the excretion of bilirubin; and (3) the detoxication of poisonous chemicals. The ease of the biliary system impairs the efficiency of the liver. There are many tests for studying the degree of liver impairment which depend on some physiological characteristic of hepatic function such as the metabolic (galactose and ninhydrin tests) and the excretory (bromsulphalein and phenolphthalein iodophthalin tests). Several of these functional capacity tests should be employed in the pre-operative study of the patient. If the results show alterations in the sugar metabolism of the liver, poor or slow excretion of hepatic dyes, or abnormal amounts of bilirubin in the blood, liver damage exists.

Liver function can be improved by the administration of glucose in the form of a rich carbohydrate diet or by enteroclysis. Glycogen thus made available stimulates the regeneration of liver cells, neutralizes toxins, and diminishes the danger of prolonged bleeding. It has been demonstrated experimentally that as much as 100 gms. of liver tissue can be regenerated daily and that a 90 per cent retention of dye for one-half hour will be decreased to retention of from 50 to 40 per cent by glucose treatment in a period of two weeks.

The hemorrhagic tendency so frequently characteristic of biliary tract disease is an indication of impairment of liver function. The liver is the former of fibrinogen. Insufficiency of fibrinogen has an unfavorable effect on the coagulation time. It is possible also that a damaged liver yields abnormal amounts of heparin which is an anticoagulant. Furthermore, calcium is removed from its active state in the blood by combination with abnormal amounts of bile salts and bile acids. Calcium therapy lowers the risk of hemorrhage only insofar as, combined with glucose therapy, it improves liver function. Direct whole blood transfusions should be given preoperatively to reduce the danger of hemorrhage.

Myocardial damage is often associated with disease of the biliary system. It is thought that the latter is a focus of infection of long duration with inevitable effect on the heart. The status of the circulation and heart should be determined before operation. An electrocardiogram will reveal any myocardial damage. Careful investigation of cardio-respiratory symptoms is also essential. Risks at the bases of the lung adjacent congestive failure. Routine digitalization of the heart is not necessary in all cases. It should be done when indicated.

The anesthetic employed should be the one which will be safest for the patient. It must not be toxic for the liver or further depress liver activity as does ether. It should be chosen and administered by a medical anesthetist (not a lay technician), but not until the complete case record and all laboratory data have been studied. In the author's opinion spinal anesthesia is best suited to the majority of cases because its use is associated with minimal straining and smooth respiration and permits good exposure without producing deleterious effects on the liver. In cases which are poor risks Hussey gives premedication and uses local anesthesia and splanchnic block supplemented by ethylene or nitrous oxide or cyclopropane. After general anesthesia, hyperventilation of the lungs with carbon dioxide and oxygen considerably lessens the incidence of post-operative pulmonary complications.

There are two complications frequently encountered after surgery on the biliary system. The first is hemorrhage consisting of a constant ooze directly from the wound or from the gastro intestinal mucosa. As a rule the use of hemostatics and calcium solutions is of no value. Whole blood transfusions given early and repeatedly will prevent exsanguination. The second complication is the so-called "liver death." This is characterized clinically by a rise in the temperature and pulse rate, anuria, and uremic manifestations. Autopsy shows extensive degeneration of the liver and renal parenchymas which are probably caused by powerful toxins. The treatment indicated in the presence of the described symptoms is the intravenous administration of concentrated glucose solutions, the prevention of dehydration, and blood transfusion.

BENJAMIN G. P. SHAFIROFF, M.D.

Marvin, F. W. *The Clinical Use of Vinethene*
Anes & Anal, 1935, 14, 257

The author discusses the clinical use of vinethene (vinyl-ether) as an inhalation anesthetic on the basis of two years' experience at the Boston City Hospital. This new general anesthetic was formerly called "vinethene." It is rendered stable by the addition of 3.5 per cent absolute alcohol and 0.01 per cent of a non-volatile oxidation inhibitor.

Physiological investigation has shown that a dangerous concentration of vinethene in the blood is more than twice the anesthetic concentration, and determinations of the concentrations in the blood necessary to produce anesthesia have demonstrated that the anesthetic potency of vinethene is four times that of ether and one and three tenths times that of chloroform. Hence there is a wider margin of safety between the anesthetic and the lethal concentration of vinethene in the blood. Liver damage has not occurred when the drug has been administered properly.

Vinethene is easily administered with comparative safety. Anesthesia is induced and the patient recovers from it rapidly. Relaxation is obtained quickly, conditions being ideal for short operations.

Postoperative nausea and vomiting are rare. Because of the quick return of the reflexes there is less likelihood of the formation of mucous plugs in the lungs and atelectasis. As vinethene is a volatile and inhalation anesthetic, it is safer to administer than an intravenous or spinal anesthetic.

JACOB M. MORA, M.D.

Saklad, M. *Spinal Anesthesia Agents, Methods, and Indications*. *New England J. Med.*, 1935, 213, 1226

For the better understanding of an anesthetic used for the induction of spinal anesthesia, its action systemically as well as locally should be known. The lethal intravenous dose of metycaine, pantocain, and nupercaine shows that the ratio of toxicity of these drugs to the toxicity of procaine is, respectively, 1, 7, 5, 8, and 4.2. However, a study of the effective dose ratio as compared with procaine shows that 8 part of metycaine, 1 part of pantocain or 0.5 part of nupercaine is as effective as 1 part of procaine. Toxicity should not be studied on an animal basis alone as the clinical criterion of the margin of safety between effectiveness and respiratory or cardiac failure is important. Procaine is considered to offer a wide margin of safety.

The action of spinal drugs on the cord tissue has been studied. Histological examination of spinal cords after various intervals following operation showed no microscopic structural changes. Pathological changes are due to failure to observe ordinary care in the technique of the administration of the anesthetic, such as intraspinal injection without dilution of the drug. A careful study of the spinal cords of animals failed to reveal permanent degenerative changes.

The activity of the drugs varies. The duration of action of procaine is one hour, that of pantocain two hours, and that of nupercaine three hours. Nupercaine and pantocain cause a fall in the blood pressure similar to that produced by procaine. Pantocain depresses respiration more quickly than procaine, probably because it has a more rapid action on the respiratory center. Nupercaine affects the anterior spinal roots more readily than procaine and therefore produces more sustained intercostal paralysis.

The drugs show interesting differences in stability. Procaine is heat-resistant up to 120 degrees C and soluble in equal proportions of spinal fluid. Metycaine can be boiled and possesses antiseptic properties. Pantocain deteriorates on prolonged boiling or heating. Nupercaine is insoluble both in spinal fluid and saline solution. Hence it must be used in buffered solution form as prepared by the manufacturer.

Small doses of morphine and atropine used routinely in immediate pre-operative medication do not affect the margin of safety of the spinal anesthetic agent. Ephedrine is of value in maintaining the blood pressure. It must be remembered, however, that cardiac extrasystoles and irregularities are often due to this drug. The average dose of ephedrine used

especially for operations in the abdominal cavity varies from 50 to 100 mgm. depending on the anesthesiologist.

The technique employed in administering the anesthetic agent can be varied in many ways.

The drug concentration is in all cases diluted by the spinal fluid. The greater the distance from the point of injection, the more dilute the concentration and the less the effect on the more distantly located nerve roots. Hence the greater the concentration, the greater the area of anesthesia.

The volume of the injected agent will vary the anesthesia, the variation depending upon the amount of the anesthetic solution. The larger the volume the larger the area of anesthesia within the subarachnoid space.

The injection level determines the possibility of nerve block.

A solution injected rapidly will reach a higher level than a solution injected slowly.

Because of variations in the normal specific gravity of the spinal fluid, an anesthetic solution of definite specific gravity may be hypertonic to one spinal fluid or isotonic or hypotonic to another spinal fluid. Any anesthetic solution with a specific gravity greater than 1.00 is hypertonic to spinal fluid. A hypertonic solution will produce a higher sensory anesthesia whereas a hypotonic solution will produce greater motor anesthesia. This is due to the fact that a solution of greater specific gravity than spinal fluid will diffuse along the plane of the dorsal motor roots whereas a solution of lighter specific gravity will diffuse along the plane of the ventral motor roots.

Postural variations used in the induction of spinal

anesthesia serve two functions. One is to permit the solution to reach a certain desired level and the other to prevent possible complications resulting from the fall in the blood pressure. The Trendelenburg position is used by most anesthesiologists during some phase of the anesthesia. Experimentally it has been shown, that in the head-down position, it takes a smaller dose to kill an animal than in the head up or the horizontal position. The Trendelenburg position is maintained nevertheless to prevent the dangerous effects of cerebral anoxia and a vital control paralysis resulting from such anoxia.

An analysis of the technique employed by anesthesiologists shows variations in the use of drugs, the site of injection, the use of epinephrine, and the volume of the anesthetic solution. A spinal anesthetic should be administered only by one who is well acquainted with the variations of technique. In inexperienced hands its use may be disastrous. Spinal anesthesia is indicated for operations on the lower extremities, the perineum, and the external genitalia and for all types of intra-abdominal surgery.

It is contra-indicated for debilitated patients and cases of advanced cardiovascular diseases. It must be remembered that advanced pathological states has been shown experimentally to decrease the normal lethal dose. Patients in shock from hemorrhage or other causes do not tolerate spinal anesthesia well. Spinal anesthesia is of value for patients with diabetes and those with poor kidney function. Stout persons in good health will tolerate spinal anesthesia better than general anesthetics. Ordinarily procaine is the best anesthetic agent. If anesthesia of longer duration is required, pantocain or tetracaine should be considered. BENJAMIN G. P. SHAFER, M.D.

PHYSICOCHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Dall 'Acqua, V., and Belli, M. Triangular Basilar Paramediastinal Shadows (Ombre triangolari paramediastiniche basilar). *Radiol. med.*, 1935, 22, 977

The authors believe that triangular basilar paramediastinal shadows seen in the roentgenogram may be due to (1) an inferior accessory lobe which is pathologically altered or (2) a blocked postero-inferior mediastinal pleurisy. Of these two possibilities the former is by far the more frequent.

Of the changes involving an inferior accessory lobe, bronchiectasis is the most common. This may or may not be complicated by chronic pneumonic processes in the parenchyma around the bronchiectatic area. It should be remembered, however, that in rare instances bronchiectasis may be observed also in the absence of indurative sclerotic processes and under such circumstances the roentgen picture has a peculiar honeycomb appearance.

Besides bronchiectasis there are other parenchymal lesions of the inferior accessory lobe which, by affecting the aeration and the density of the tissue may be responsible for the appearance of the described shadows. Most frequent among these are chronic bronchopneumonia and acute lobar pneumonia. Less frequent are specific tuberculous infiltrations and atelectasis of the inferior accessory lobe.

Belli and Dall 'Acqua discuss also the diagnostic signs visible on the screen which are important for the differentiation of a blocked mediastinal postero-inferior pleurisy from an infiltrative process of the lower accessory lobe. These signs include (1) the character of the pathological shadows, (2) the mobility of the respiratory movements, (3) the characteristics of the hypotenuse of the triangular shadow, and (4) the characteristics of the triangular shadow in the lateral projection.

All of the patients whose cases are reviewed gave a history of measles and pertussis and when seen at the clinic had a cough and purulent expectoration. The disease usually ran a chronic course interrupted by periods of exacerbation which were characterized by hemoptysis, fever, severe cough, and profuse expectoration. The author suggests that bronchography should always be done, and in cases of suspected blocked mediastinal pleurisy exploratory thoracocentesis may be attempted.

The conditions which may alter the configuration of the cardiophrenic angle are retrocardiac aneurism, hypertrophy of the left auricle, pericarditis, cold abscesses of the vertebrae, idiopathic dilatation of the esophagus, and diaphragmatic hernia. On the right side the hepatocardiac angle may be partially obliterated by an anomalous hepatic vein, the vena

cava, or the presence of large amounts of fat on the external surface of the pericardium.

RICHARD F. SOMMA

Levitin, J., and Brunn, H. A Study of the Roentgenological Appearance of the Lobes of the Lung and the Interlobar Fissures. *Radiology*, 1935, 25, 651

This study was undertaken to obtain a set of diagrams showing the appearance of the lobes of the lung and interlobar septa in the postero anterior and lateral views which might serve as a guide to the localization of disease processes and an aid in determining their nature. In order to secure the information needed for such diagrams, models of the lobes were made of paraffin and fitted into the thoracic skeleton. Lead foil about $\frac{1}{4}$ mm in thickness was wrapped around the various lobes and roentgenograms were made in the postero anterior and lateral positions. In this way it was possible to visualize the different parts *in situ*.

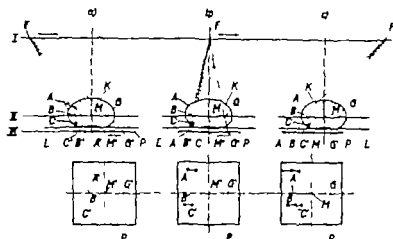
Numerous outline drawings illustrate the difficulties encountered diagnostically unless full consideration is given to anatomical factors. Roentgenograms made in clinical cases with an unquestioned diagnosis are presented and compared with the diagrammatic presentations. A general description of the lobes and interlobar fissures is included, and the appearance which various pathological lesions would produce in them is discussed and illustrated.

WOLFE HARTMAN, M.D.

Grossmann, G. Lung Tomography. *Brit. J. Radiol.*, 1935, 8, 733

Tomography is a method of reproducing body layers by roentgenography. It is dependent upon the fundamental fact that in normal roentgenograms the parts of the body close to the film are more contrastfully and sharply reproduced than the parts farther away from the film. This is much more the case the greater the focal distance of the film and the nearer the body to the film. On the basis of this fact it was assumed that isolated reproduction of superficial parts should be obtainable by placing the tube as close as possible to the body. This is impossible because too great superficial doses would be given. Similarly, isolated reproduction of internal organs is impossible for geometric reasons.

Roentgenograms made at a focal distance of 1 meter give better reproduction of nearer parts of the lung, while the distant parts are not sharply defined. With a focal distance of 2 meters, the linear dimensions of distant parts of the lung appear in the roentgenogram only 7 per cent more magnified than those of nearer parts, the degrees of sharpness are different, although the contrasts are equal for both



Focus F and the film P are moved along straight lines

The difficulties in pulmonary roentgenography are due to the fact that the lung is a very translucent body surrounded by less translucent parts. Errors in interpretation may be caused by shadow superimpositions. Numerous attempts have been made to produce a plane free from superficial shadows: the first by Bocage and by Portal and Chausse in 1921. These methods are based upon movement of the tube target and film during the exposure in such a way that the roentgen shadows of a certain point permanently fall upon the same point of the moved film. Most of the devices previously described are too complicated.

The author's method is based upon the above mentioned principle. Let it be supposed that, in the figure, Focus F and the film, P are moved along straight lines within Planes I and III respectively, which are both parallel with Body Section II to be roentgenographed. Fig. 1a shows the start, Fig. 1b the middle, and Fig. 1c the end position of the focus and the film. The focal ray FMI passing through the middle point of the body section, M strikes the film at the point M'. We imagine the ray FMI should be replaced by the telescopically extensible rod, which is rotatable around the fixed point, M and pivotally connected with the film P. It is further supposed that the film is movable only parallel with itself in the direction of the linear focal path. With the focus movement from (a) over (b) into the end position (c) the rod FMIM' revolves around the fixed point, M and drives the film to the left. All points of Plane II are reproduced as points and in the same manner as if the focus and the film were stationary. The shadows of body parts in close proximity to Plane II are only slightly blurred and are still reproduced distinctly, not a mathematical plane, but a layer is reproduced.

The author discusses in detail the various method previously used to arrive at this latter roentgenogram and gives his reasons for choosing a focus

movement with a plane perpendicular to the body layer. With his apparatus the tube rotates around its axis perpendicularly to its linear path so that the central ray permanently aims at the layer center. The movement of the tube and film is that of a pendulum. The tube movement is transmitted to the film by rigid members rotatable around fixed parallel axes. If the pendulum axis is raised or lowered a certain distance in order to reproduce another layer the film holder is automatically lowered or raised.

It is claimed that by this method the pulmonary vessels and their ramifications, the bronchi, the form, dimensions, and relations of cavities to bronchi and other pathological alterations of the bronchial tubes are distinctly visualized. The most important field of application of tomography is said to be in lung diagnosis. While the method may still have a practical application in this field, the brevity of the roentgenograms obtained as compared with those obtained by currently used methods would seem to limit their field of use. HAROLD C. OGDEN, M.D.

Farinas, P. L. Serial Bronchography in the Diagnosis of Suppurative Pulmonary Processes. *J. Roentgenol.* 1935, 34, 579.

Numerous cases of pulmonary abscess are studied by serial bronchography under roentgenoscopic control. The findings are described in detail and illustrated by roentgenograms. The rod of oil was introduced by catheter directly into the part of the lung to be explored and at intervals during the examination a series of roentgenograms was made from the large bronchi to the pulmonary alveoli.

The bronchial tree alterations presented different aspects according to the type and the stage of evolution of the bacera. In the cut stage when the plain roentgenogram presents only evidences of an acute pneumomph, the bronchogram is usually normal but there is no alveolar dispersion because

these structures are filled with purulent exudate. There is a type of acute abscess in which cylindrical dilatations of the bronchi or all of the affected area are present very early.

After the vomica during the eliminating stage, when a poorly defined cavity without a hydro-aerial level may be observed in the roentgenogram, the bronchographic aspects are variable. As a rule the iodized oil will not penetrate to the abscess cavity and the bronchial tree may still appear normal. When the pneumonic process resolves, alveolar dispersal occurs. In some cases there may be a cylindrical or ampullar dilatation in the bronchus draining the cavity.

When a bronchopneumonic process begins to suppurate it may present many small abscesses separated from each other. However, these may coalesce together to form larger cavities which may fill with the iodized oil and become visible on the bronchogram.

The chronic abscess which in plain roentgenograms usually presents characteristic findings consisting of a fibrotic walled cavity with a hydro-aerial level surrounded by a zone of pneumonitis ordinarily allows the iodized oil to enter the cavity and the bronchus draining it shows cylindrical or ampullar dilatations. Bronchi around the cavity of an abscess may show cicatricial dilatations due to retraction from sclerosis in the pulmonary tissue. Alterations in the bronchi of the corresponding base may also be present even when this part is at some distance from the abscess. These may have all the forms of bronchiectasis.

In the ordinary roentgenogram bronchial carcinoma of the ulcerating type may present almost the same findings as a chronic abscess. In the bronchogram, the cavity of the lobar carcinoma generally does not fill and the whole bronchial tree at its level is displaced by the tumor. This never occurs in cases of abscess. ARTHUR HARRIS, M.D.

Martick, W. I. Our Changing Concepts Regarding the Skin Dose, with Some Notes on the Production of Epidermolysis. *Am. J. Roentgenol.*, 1935 34: 401.

The author presents not only a review of the past but also a prophecy as to the future of our conception of skin erythema. Most radiologists now employ a fractionated technique, giving in many instances sufficient irradiation to produce epidermolysis. The epidermolytic dose is approximately 65 per cent higher than the former generally accepted therapeutic erythema dose produced by 800 r primary irradiation at 0.16 Å eff.

The epidermolytic reaction can be attained by one massive dose, but is produced more safely by a series of fractionated optimum daily increments. In the author's opinion it is purely optional whether a heavy 3-mm. copper filter or the ordinary 0.5 mm. copper filter is used to cause the reaction. Protraction or diminished r/min intensity is not essential for the production of this reaction although the

claim of a more selective effect on the tumor is well established. The epidermolytic dose is usually attained most safely by a series of daily fractionated increments planned to build up a saturation effective or cumulative dose of approximately 1,300 r for the 0.16 Å eff. and 2,000 r for the 0.11 Å eff. beam at 200 kv. are employed. The effective r dose becomes the important consideration. The total r dose so often reported has little significance unless other factors are given. The report should include the duration of the treatment time in days, the optimum daily increment in r, the effective wave length and the cumulative or effective primary r in the skin.

CARL L. BARN, M.D.

Harris, W. Neoplasms of the Oral and Upper Respiratory Tracts Treated by Protracted Roentgen Therapy. *Am. J. Roentgenol.* 1935, 34: 457.

The author discusses the principles of the Coutard or protracted method of irradiation, reports a series of twenty-six cases of extensive intra-oral and laryngeal carcinomas which were treated during a period of three and a half years, and emphasizes the importance of the general care of the patient, such as nutrition, oral hygiene and relief of pain. He states that the roentgenologist should outline a definite plan of therapy and directly supervise the installation of each treatment.

In the reported cases treatments were given twice daily with the following factors: 200 kv. pulsating, 3 to 4 ma., a filter of 2 mm. Cu plus 2 mm. Al, and a focal skin distance of from 50 to 60 cm. From 3 to 5 r a minute were given, beginning with small treatments and followed by 200 r measured with back scattering. With the use of portals of from 100 to 150 sq. cm. from 3,000 to 3,600 r may be given if protracted daily over a period of from twenty-five to thirty-two days. In several of the reviewed cases a maximum of 4,200 r was administered to each of two fields for crossing of the neck.

The cases are divided into two groups. Group 1 consisted of twelve cases of extensive intra-oral epitheliomas with enlarged cervical nodes. Two of the patients are alive and free from signs of the disease after thirty-four months, and one is alive and well after thirteen months. Another patient who is alive after fourteen months, has necrosis of the mandible which may be malignant. In the case of one of the patients who is still alive thirty-four months after the irradiation the uvula was removed four months after the treatment and disease was found at that time. Later, a swelling of the posterior pharyngeal wall was treated with radon seeds without necrosis. The other patient living after thirty-four months had only external irradiation. The author believes that external irradiation alone cannot control the majority of these extensive intra-oral malignancies and should be supplemented by intrinsic radium irradiation and possibly surgical diathermy.

The second group of cases reported consisted of fourteen cases of carcinoma of the larynx, both intrinsic and extrinsic, which were treated prior to May 1933. The immediate response was favorable in the majority and palliation was obtained even when recurrence developed. Neither pulmonary nor general complications nor late necrosis occurred. Favorable results were obtained by the protracted method of irradiation except in some cases in which the carcinoma infiltrated muscle and cartilage. The author believes that for cases of the latter type a different technique, possibly with greater protraction, should be considered. In cases of true cord tumors it is probably safer to operate whenever possible. The response to irradiation is usually poor when the cord is fixed. It is very difficult to differentiate between true cord tumors which will or will not respond to protracted external irradiation. In the author's opinion the favorable response of these laryngeal tumors is due to the following factors: (1) the relative radiosensitivity of the tumors, (2) the small size of the tumors which makes small portals of entry possible, (3) the proximity of the tumors to the skin surface, (4) the use of crossfire and (5) the possibility of a large depth dose without damage to normal tissue, which is made possible by the method of irradiation.

EARL E. BAKER, M.D.

Chamberlain, W. L.: Modern Concepts of Roentgen Therapy in Cancer. *J Am Med Ass* 1935, 95: 817.

Röntgen therapy in cancer has passed through many phases since the possibility of producing tumor regression thereby was first demonstrated. Outstanding transactions are discussed briefly by the author. Steady progress in refinement of the technique and scientific evaluation of the method has laid the foundation for the rational application of the treatment. It is recognized today that, in spite of thousands of cures and countless valuable palliations, irradiation, like surgery, is not the final answer to the cancer problem.

The scientific roentgenologist of today recognizes certain limitations inherent in his method. Frequently dosages sufficiently large to cure the cancer cannot be given without destroying the integrity of adjacent normal tissues. Amounts of irradiation that are sufficient to rid the patient of from 90 to 99 per cent of his tumor cells may not have any permanent deleterious effect on the remainder. Seemingly uncontrollable factors are frequently present. In some cases extensive irradiation renders the tumor unresponsive to subsequent irradiation or other forms of therapy. Intriguing factors that may be grouped under the general term of the reaction of the patient's tissues render it impossible to foretell the results of roentgen therapy in all cases and thus cause doubt as to the advisability of its use.

Recent advances in the field of roentgen therapy are discussed under the following heads:

The nature and degree of skin tolerance and the recovery of the skin after irradiation.

1. Increasing knowledge of the relationship between the location, type, and macroscopic appearance of the tumor and the most effective method of applying the irradiation.

2. Increasing appreciation of the place of preoperative irradiation.

3. Decreasing emphasis on postoperative irradiation.

Also considered are the following involved problems:

1. The effect of higher voltages and thicker filters (i.e. shorter wave lengths) on the incidence of five year cure.

2. The ability of surgery to prevent the late recurrences of tumors that have apparently regressed completely.

In conclusion the author states that, according to the modern concept, roentgen therapy is not a rival of surgery in the treatment of cancer but an ally to be used when indicated. In the present-day battle against cancer cooperation between the physician, surgeon, pathologist, and radiologist constitutes the best armamentarium.

ABRAHAM HARTMAN, M.D.

RADIUM

Beving, M. G., Eckert, C. T., and Cooper, Z. K.: The Relationship Between Vascularity and the Reaction to Radium of Squamous Epithelium. *Am J Cancer* 1935, 25: 525.

The striking diversity of opinion regarding the mechanism of tumor changes following irradiation is evidence that this phenomenon is probably not well understood. According to some the vascularity of the involved tissue seems to modify the reaction greatly, whereas according to others the effect of irradiation is strictly intracellular. These differences of opinion are discussed briefly with quotations from various authorities.

The authors set about to devise a method to test the influence of vascularity upon irradiation effects. After several attempts the following method was decided upon:

A racket-shaped pedicled flap was cut completely through the thickness of the ear of a rabbit, the longest dimension of the flap being parallel with the length of the ear. The blood supply was derived from a narrow pedicle 4 or 5 mm. wide. After three or four days, the circulation was further compromised by removing a strip of skin and subcutaneous tissue 4 mm. wide bridging the base of the flap on the dorsal aspect.

As the result of this procedure the epithelium on the dorsal aspect of the flap was nourished only by blood coursing through the ventrally placed vessels which penetrated the cartilage of the ear. Frequently the flaps became gangrenous, but in seven rabbits they remained viable. Reduction of the circulation was evidenced by a chalky white cadaverous color, an increase in the thickness and edema of the whole flap, a dark and congested color on pressure, little change in color on the application of heat.

or friction, reduction of the bleeding when tissue was removed for biopsy, and microscopic changes. The microscopic changes were an increase in the thickness of the epithelium from between three and six cell layers to from ten to fifteen cell layers, a degenerative process, and swelling of some of the nuclei and pyknosis of others. The subcutaneous tissues showed marked thickening and fibrosis.

The irradiation was given to the flap and to a corresponding area on the other ear to be used as a control. A 50-mgm capsule filtered by 1.0 mm of German silver and 0.5 mm of rubber was used. The exposure was two hours. A full-thickness piece from the flap and a comparable piece from the other ear were removed before the irradiation and at intervals of twenty-four, forty-eight, seventy-two, and ninety-six hours after the irradiation. After the irradiation of the normal ear no gross changes were noted in a ninety-six hour period of observation. Microscopically there was an increase in the thickness of the epithelial layer due partly to edema and partly to acanthosis. The number of cells per field seemed to decrease progressively over the period of observation. Definite swelling of the nuclei was noted, especially in the observations made after forty-eight and seventy-two hours. Lighter staining of the nuclei was observed. In the examinations made after forty-eight and ninety-six hours more pronounced pyknosis was observed. In the compromised epithelium no gross changes were found during the ninety-six hour observation. The swelling of the nuclei was most marked after ninety-six hours. The only clear-cut contrast between the effect of the irradiation on the nuclei of the flap and on those of the control tissue was the presence of a greater number of pyknotic nuclei in the epithelium of the flap. All in all, the changes in the flap vasculature compromised were the same quantitatively and qualitatively as those occurring in the normal control ear.

In summarizing the authors state that radiosensitivity seems to be an inherent quality of the cell which varies even in individuals of the same species.

A. JAMES LARKIN, M.D.

Schuerch, O., and Uehlinger, E. Changes Produced in Abdominal Organs by Irradiation (Strahlenveränderungen an abdominalen Organen). *Deutsche Ztschr. f. Chir.*, 1935, 245-261.

The authors carried out a series of studies on twenty rabbits and four dogs to determine the changes produced in abdominal organs by irradiation. The aim of the investigations was to find out whether it is possible to carry out a rational radium irradiation of tumors of the pancreas, stomach, or region of the porta of the liver.

Radium irradiation of the area around the foramen of Winslow with from 2.4 to 4.8 mcd led to ulcer formation in the stomach and upper small intestine in thirteen of seventeen rabbits and to slight injury of the pancreas in three, but in no instance caused changes in the liver. Three gastric

or intestinal ulcers led to fatal peritonitis because of perforation, and one duodenal ulcer perforated into the right pleural cavity. Three rabbits bled to death from the erosion of a blood vessel in the base of an ulcer. Pathologico-anatomically, the irradiation injuries corresponded to wall necroses and ulcers of varying depths. The mucous membrane and particularly the glandular epithelium were found to be most radiosensitive. The ulcers had practically no tendency to heal.

In one dog, irradiation of the pylorus with 4.8 mcd led to circumscribed penetrating necrosis of the wall of the stomach, and in two of three dogs irradiation of the pancreas with from 1.2 to 4.1 mcd led to circumscribed colliquative necrosis of the pancreas. The injuries produced by irradiation were basically the same whether roentgen or radium irradiation was used. The small intestine and the stomach proved to be the most sensitive of the internal organs, and their most sensitive parts were the mucous membrane and the lymphatic tissue. The outer coats of the stomach and intestine and glandular organs such as the liver and pancreas were much less radiosensitive. The vessels are extraordinarily radioresistant. The difference in the results of irradiation in the dog and in the rabbit are to be attributed to the difference in the size of the organs of these animals as the results were not essentially different in nature. In man, as in the dog, separate irradiation of the pancreas or stomach with radium needles should be possible without injury to any other organ.

(LOEHR) FLORENCE ANNAN CARPENTER

MISCELLANEOUS

Montanari-Reggiani, M. Experimental Contribution to Knowledge of Physiopathological Action of Repeated Ultraviolet Irradiation in Circumscribed Areas of Skin (Contributo sperimentale alla conoscenza della azione fisiopatologica della irradiazione ultravioletta in zone cutanee circoscritte). *Ann. ital. di chir.*, 1935, 14-831.

The author studied the systemic effect of repeated ultraviolet irradiation over circumscribed areas of skin in the rabbit and dog. The results were uniform in both groups. The erythrocyte count increased 2,000 to 5,000 after the first or second irradiation. After the third and subsequent irradiations the count returned to the initial reading or lower. The percentage of hemoglobin followed the general curve of the variations in the erythrocyte count. The leucocytes were increased, but the leucocytosis was mild and lasted for only a few days following the irradiation. The differential white blood count showed a diminution of the neutrophils such that they constituted from 20 to 40 per cent of the leucocytes. The lymphocytes and monocytes were increased immediately following the irradiation. The coagulation time was decreased. The sedimentation rate of the erythrocytes was accelerated shortly after the irradiation, but later the time was in-

creased. The antipeptic activity of the blood serum was diminished after several irradiations usually with the development of a cutaneous erythema. After from ten to fifteen days, with the disappearance of the skin lesion there was a return of the antipeptic activity of the blood serum to normal which was reached after from twenty to thirty days.

In the later histological examination following irradiation disclosed a cloudy swelling and fatty degeneration of the parenchymal cells and in some instances areas of focal necrosis.

The kidneys showed paracellular hemorrhages which were more frequent in the cortex than in the medulla. The spleen contained small areas of focal necrosis. The mucosa of the stomach and duodenum showed a cloudy swelling, fatty degeneration, and vascular stasis. There were small hemorrhages and areas of focal necrosis of the gastric mucosa.

The author believes that the systemic effects of irradiation of circumscribed areas of skin is due to elaboration at the site of the irradiation of split proteins or products of protein decomposition such as histamine or histamine like substances which enter the blood stream and produce changes in the blood elements and viscera. (PETER A. ROSS, M.D.)

Lux, A.: The Present Status of Short Wave Therapy
(Ueber den heutigen Stand der Kurzwellentherapie)
Wiener Med. Wochenschr. 935, 1: 772

In short wave therapy there is a specific effect upon the chemical components of the cells which is selective insofar as different colloidal and osmotic changes are produced in the individual cells according to their particular type. The optimal production of heat under different conditions is taken as the criterion of the effect, but the question whether the specific effect is not subject to other laws still remains open. Unlike diathermy, the short wave current does not follow the course of the blood vessels and therefore may heat up structures which are poor in blood vessels, such as tumors.

In cases of furuncle and carbuncle, desquescence is produced in from twenty four to forty eight hours and freedom from symptoms is attained in from

three to six days. For this purpose the unipolar method of Thomsberg is employed. Recurrent furunculoses were usually cured in six weeks. In painful infiltrations with a tendency toward abscess formation the feeling of tension was distinctly relieved in the first few minutes and the pain ceased for many hours. In severe acute eczema the pain was relieved immediately and, after from five to ten treatments, cure was obtained by concentrating the effect by covering the parts with metallic substances. In angioedematous conditions and frostbites excellent and permanent results were obtained. Among the diseases of the joints, gonorrheal arthritis, especially was relieved of pain to such an extent that passive motion was possible. After injuries from sports there was rapid alleviation of the pain and the articular exudates were quickly resorbed.

In acute attacks of gout the symptoms disappeared rapidly. Acute suppurations of the accessory nasal sinuses were considerably improved by a few treatments; the shadows in the roentgenograms disappeared. In chronic suppurations of this type considerable relief is obtained, but punctures or radical operations are necessary. The method is indicated in chronic tonsillitis when operation is contraindicated. It seems to have a favorable effect also upon pleural effusions and abscesses and gangrene of the lung, but the apparatus must have a deep action. In paranasal lymphadenitis, and parotitis, breaking down of the tumours was prevented and, in addition to rapid relief of the pain, rapid resorption was obtained.

In the dental field, focal infection (root abscesses and granulomas) were affected favorably in a very short time so that the symptoms of disease in other organs disappeared. However the effect upon the bacteria is not so marked *in vitro* as *in corpore*. It is probable that the bactericidal ability of the organism is favored by the short wave therapy. The results were excellent also in periodontitis and periostitis in the region of the teeth.

Neither burns nor other injuries were observed in the several thousand cases treated up to the present time. (Viktor Hirtzel, Louis Schwartz, M.D.)

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Levin, C. M., and Dearly, F. N. The Surgical Diabetic. *Ann. Surg.*, 1935, 102: 1029.

Levin and Dearly believe the first essential in the treatment of surgical diabetes is recognition of the fact that they are essentially poor risks and must be routinely handled by co-operation between the internist and surgeon. The two greatest dangers to the surgical diabetic are the co-existence of lowered resistance to infection and arterio-sclerotic changes. Also in many cases there has been a recent loss of weight. The surgical diabetic presents an intricate and complex problem because of increased susceptibility to shock, intolerance to trauma, infection, and the constant threat of acidosis.

The authors avoid the use of chloroform and ether if possible. Ethylene with local infiltration and spinal anesthesia are suitable, but the type of anesthesia should be determined for each case.

For standards of treatment, the authors divide their cases into the following three groups: (1) urgent cases demanding immediate operation, (2) essential cases in which prompt operation is indicated but there is time to stabilize the patient, and (3) cases in which surgery is not essential to save life.

They briefly review their routine procedure in the pre-operative and postoperative management for each type of case.

In the cases they treated over a five year period the total mortality was 27.2 per cent and the operative mortality 25 per cent. The operative mortality was highest, 33.3 per cent, in the urgent group. In the essential group of cases, in which the incidence of carbuncles, infection of extremities, and thigh amputations was high, it was 20 per cent. In the cases in which operation was elective there was no operative mortality. Sepsis and arterio-sclerotic heart disease were responsible for thirty-three of thirty-seven deaths. Of forty-four patients admitted to the hospital with gangrene, 45 per cent died. In the cases of thigh amputation there was a mortality of 50 per cent. This high mortality can be reduced by: (1) earlier surgery in cases demanding operation, (2) the avoidance of all but radical surgery, (3) careful observation in cases of dry gangrene in order to prevent infection and to have the patient prepared in case surgery becomes necessary, (4) prompt radical amputation through the thigh in cases of the moist type of gangrene or with infection, and an attempt to obtain primary union, (5) avoidance of the use of a tourniquet for gangrene of any type, and (6) selection of the type of anesthesia best suited to the individual case.

The authors emphasize that complications are disastrous for the diabetic and should be vigorously attacked early. It is the complications that prevent the diabetic from responding to the usual surgical procedures. HARVEY S. ALLAN, M.D.

Rosenfeld, S., and Lenke, S. F. Tiger-Snake Venom in the Treatment of Accessible Hemorrhage. *Am. J. W. Sc.*, 1935, 192: 779.

The authors report that tiger snake venom has been successfully employed to check uncontrollable local bleeding in eight patients suffering from hemorrhagic tendencies. Three of these patients had thrombocytopenia, two hemophilia, one, multiple hereditary telangiectases, one, prolonged jaundice, and one angiodystonia with bleeding due to the local action of hirudin from leech bites.

During the clinical experiments there were only two occasions when doubt arose as to the efficacy of the venom. On one occasion the failure seemed to be due to a thick coating of precipitated ferric chloride and tannic acid, which interfered with the action of the venom. When this incrustation was removed and the venom was applied to the raw bleeding surface the hemorrhage ceased within three minutes. On the other occasion a lacerated fragment of the gum continued to bleed after the application of venom although the rest of the wound was dry. The ordinary interdigital packing was serving only to lacerate this fragment further and to increase the hemorrhage from the site. The application of a venom pledget by digital tamponade to the exact point of bleeding promptly stopped the flow.

It was interesting to observe a sort of rhythmic recurrence of the bleeding tendency in the hemophiliacs. After tooth extraction the socket was usually quite dry for from eight to twelve hours (the more so, of course, if adrenalin was mixed with the local anesthetic). Then, after serious bleeding occurred and was checked by the venom it sometimes recurred about twenty-four hours later. In one case, bleeding recurred at about the same time in the afternoon for a number of days. Venom does not seem to prevent recurrences of bleeding from the treated area after an interval of hours or days. Perhaps the renewed flow is due to trauma, such as may be produced by chewing, or to the cryptic factors which influence the hemorrhage in a hemophiliac, or to washing away or destruction of the venom. To reduce the possibility of recurrent hemorrhage, pressure should be maintained over the site of bleeding for several hours after hemostasis has been obtained. For dental hemorrhage a Barton bandage has been usually applied overnight.

Neurological examination of the patients whose cases are reviewed disclosed no evidence that the

neurotoxin of the venom was doing any damage. Even in patients who received large amounts (from 15 to 30 c. cm. of a 1:5,000 solution) orally or intranasally no impairment of the cranial nerves and no muscular weakness were noted.

Locally no swelling, ulceration, necrosis, or infection was observed. The wounds healed normally.

Some confusion may arise between tiger-snake venom and the venom of the water-moccasin which has been used recently to prevent hemorrhage. Moccasin venom is given intradermally or subcutaneously. Tiger-snake venom should be employed only by topical application and not injected.

JOHN H. GARLOCK, M.D.

Colebrook, L., Moxsted, W. R., and Johns, A. M.: The Presence of Hemolytic and Other Streptococci in the Human Skin. *J. Path. & Bacteriol.* 93:4 52

Hemolytic streptococci of the kind usually associated with human postperal infections (Lancefield's Group A) were not found on the perineal or perianal skin of 160 women attending an antenatal department and the risk that such streptococci will be conveyed to the genital tract from the feces is considered remote. Group A hemolytic streptococci were isolated from the hands of 7 (3.8 per cent) of 181 normal individuals. It seems probable that they were derived from the respiratory tract. Treatment of the mother's hands during labor with an antiseptic such as dettol which persists on the skin for some hours is advocated. Non-hemolytic types of streptococci (chiefly streptococcus viridans) were found on nearly all the hands investigated but not on the skin of the intercapular region.

J. THORNTON WINTERSHOOT, M.D.

Senti, E.: Pustula and Glandular Abscesses of the Right Iliac Fossa (Pustula adeno-acetosa della fossa iliaca). *Ann. Ital. di chir.* 91:14 893

The author reports two cases in which a suppurative process developed in the psoas muscle following trauma. In both cases the inflammation progressed to abscess formation which produced a mass in the right iliac fossa. Drainage of the abscesses was followed by uneventful recovery.

Senti believes that pustula is generally due to the infection of a traumatized muscle or hematoma through the lymph channels.

In discussing the differential diagnosis between pustula and suppuration of the inguinal lymph glands he states that pustula usually occurs after trauma and the pain in pustula is more severe and radiates posteriorly toward the lumbar attachment of the muscle and the lesser trochanter. The fixed position of the leg in pustula is more pronounced and less easily corrected than that in acute suppurative adenitis.

The tumor mass produced by suppurative adenitis is irregular and relatively superficial and may become relatively large whereas abscesses in the psoas muscle are deep and remain relatively small.

The psoas abscess may drain toward the lesser trochanter or toward the lumbar region. The pus from a psoas abscess is brownish as from the suppuration of a hematoma whereas the pus from suppurative adenitis is yellowish-white.

PETER A. ROSE, M.D.

Amardi, T.: The Pathogenesis of Epidermoid Cysts (Sulla patogenesi delle cisti epidermoidi). *Clin. der.* 1935 1 645.

The author reports a case of epidermoid cyst of the neck in a girl aged thirteen years. The cyst was removed and studied histologically. After observing this case Amardi carried out a series of experiments on rabbits to determine the cause of such cysts. He applied tar to the rabbits' ears two times a week over a period of from eighty five to ninety days.

Besides the typical findings of tar cancer he noted changes in the morphological characteristics of the skin on the inner aspect of the ear which seemed to be of importance in the genesis of cutaneous cysts. The epithelium on the inner side of the ear first became wavelike. From the small undulatory dentils cutaneous pockets opening to the exterior developed. As the pockets became deeper the opening on the skin became gradually smaller. Finally the opening disappeared, forming a cyst which was separated from the skin by the interposed connective tissue and had no connection with the skin surface. Later the cyst became free in the subcutaneous connective tissue.

PETER A. ROSE, M.D.

May, R. M.: The Brephoplastic Graft (La greffe brephoplastique). *Presse Méd. Par.* 1935 No 9: 135.

The author defines brephoplastic grafting as the functional and durable transplantation of tissues from the embryo or newborn to young or adult animals. (From the Greek *Brephos*, embryo.) After a general discussion of grafts he reports his experiments in which brain, thyroid, and parathyroid tissues were transplanted from white rats the day they were born into other young animals of the same species. In the earlier experiments the grafts were placed in the anterior chamber of the eye of the recipient where they had a favorable culture medium and could be easily observed. In later experiments, subcutaneous implantations were made. Grafts observed up to one hundred sixty-seven days showed apparently normal growth, both macroscopically and microscopically. In the case of thyroid and parathyroid grafts, the tissue was taken from animals the day they were born and transplanted into young animals of the same species, into either the anterior chamber of the eye or the subcutaneous tissue behind the ear. Several days after their introduction, all normal thyroid and parathyroid tissue with the exception of the grafts was removed from the recipients. Animals so treated were compared with other animals of the same age thyroidectomized at the same time but with no grafts, and with control animals not operated upon. In every instance in

which grafting was done the graft took and grew and the animal developed just as did the controls. The thyroidectomized rats without grafts either died or failed to grow and develop.

In conclusion the author says that by the described experimental method it is possible constantly to obtain perfect permanent and functional grafts in small mammals, and that the time has come to think of the practical application of the method to man. Brephoplastic grafts of tissues and organs of the fetus or the newborn child dead of traumatism might be used. Still to be determined is the maximum time that may elapse between the death of the donor and the transplantation of the graft to the recipient.

MAX M. ZINNIGER, M.D.

Waldorp, C. P., Membrives, J. R. and Luchetti, S. S. Successful Transplantation of the Bovine Hypophysis into Man. (*Trasplante de hipofisis bovina al ser humano con exito*) *Rev. Soc. de Obst. y Ginec. de Buenos Aires*, 1935, 14: 615.

The authors review the reports of transplantation of the hypophysis in clinical cases and remark that, notwithstanding some good results in dwarfism, diabetes insipidus, ovarian insufficiency, and uterine hypoplasia with virilism, the method has not been developed.

They report three cases of intramuscular implantation of both lobes of the gland from young bulls

into human beings. The results were successful although not equally good in all of the patients.

Case 1 was that of a youth eighteen years of age who presented dystrophia adiposogenitalis without a pituitary tumor. Two implantations within a year produced an increase of 4 cm. in height with a reduction of the weight and the gynecomastia, an increase in the basal metabolism, growth of the testicles and penis to twice their former size, the appearance of hair on the pubis and upper lip, and a change in the voice and the facies.

Case 2 was that of a twenty-six-year-old woman with amenorrhea of eight years' duration, uterine hypoplasia, hot flushes, obesity, asthenia, and alopecia. Menstruation appeared fifteen days after the implantation and has recurred regularly during the three months that have elapsed to date. The other symptoms have disappeared, and the hair is growing again.

Case 3 was that of a woman of thirty-eight years who had had diabetes insipidus for seven years and menorrhagia and dysmenorrhea for two years. During the first day after the implantation the amount of urine, which had previously averaged from 20 to 35 liters, fell to 5 liters. Between the second and twelfth days it varied from 3½ to 1½ liters and then rose to 5 or 6 liters a day.

The article is accompanied by illustrations and references.

M. F. MORSE, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THE ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

- Epithelioma of the scalp G J HERRICK. *California & West Med* 935 43 434
Fracture of the skull I GOTTLIEB. *Med Mod New York* 1935 43 511
Osteomyelitis of the skull C VON ERCKEN. *Proc Roy Soc Med Lond* 1935 30 93
The roentgenological aspects of osteomyelitis of the skull K KORNBLUM and P J HODGE. *Radiology* 935 43 566 [313]
Face lifting E LARSEN. *Zentralbl f Chir* 935 p. 3371
An analysis and report of ten consecutive cases of acute thrombosis with recovery G D WOLF. *Laryngoscope* 935 45 940
Salivography or lipiodol injections of the salivary ducts H F HARR. *Burg Clin North Am* 935 15 1567
A contribution to the study of benign tumors of the parotid gland and their radiological treatment S HIRSHWITZ. *Acta chirurg Scand* 935 77 19 [314]
The technique of local anesthesia for total removal of the parotid gland R FROCHTIGER and G H DICKMAN. *Seminars med* 935 47 1440
Paranasal phlegmons and its influence on the oropharynx M B FARMER. *New Khar arkh* 935 34 34
Dry mouth, vile taste, colic in the submandibular gland P S STOKER. *Laryngoscope* 935 45 96
Fracture of the symphysis T cases with treatment. P SCHWEDIGER. *Schweiz med Wchnsch* 935 73
An outline of treatment of fractures of the jaw E KIRCH. *FACHZ* 935 Leipzig, Meissner
The treatment of recent fractures of the lower jaw T GROS. *Seminars med* 935 4 370
Osteoma of the jaw and their clinical diagnosis WARMON. *Zentralbl f Chir* 935 p. 831 [314]
The use of electromyography in tumors of the upper jaw and tongue S FROVING. *Verhandl d Kong negativer chir Ges* 934 4 56

Eye

- The relation of Vitreous A to anophthalmos in pigs H HALP. *Am J Ophth* 935 8 687
Intra-ocular non-malignant foreign bodies, with special reference to their removal G H CROSS. *J Med Soc New Jersey* 935 3 697
The use of superoxide treatment in the eye for the relief of pain resulting from trauma W C MINNER. *Am J Surg* 935 30 500
The causes of blindness in children, their relation to preventive ophthalmology C BARRA, C I KERRY and I C M HAY. *J Am M Ass* 935 105 940
Recurrent myopia with a moving stimulus of alternating intensity F L WARMON. *Brit J Ophth* 935 9 67

- Red multiple maddox rod with a prism, C BARRA. *Brit J Ophth* 1935 9 66
The mechanism of experimental anophthalmos C F COOK and H E LARKER. *Am J Ophth* 935 18 1173
Metastatic ophthalmos in case of pneumonic bacteriological findings S H McKEE. *Am J Ophth* 1935 18 1145
Infantile glaucoma W G MINOTT. *J Med Soc New Jersey* 935 33 680
A case of spontaneous glaucoma in a rabbit W BERRY. *Am J Ophth* 935 8 144
Syphilitic and primary glaucoma W BERRY. *Am J Ophth* 1935 18 39
Glaucoma, with special reference to surgical aspects and early diagnosis H M TRAQUAIR. *Brit M J* 1935 935 [314]
The use of an extract of adrenal cortex in glaucoma A C WOOD. *Arch Ophth* 1935 14 936
The surgical treatment of glaucoma. S J MITTS. *Illness M J* 935 68 320
The resection operation a cataract R O'CONNOR. *Am J Ophth* 935 8 37
The bacterial flora found in the normal conjunctiva D KROMAR and R TROSTENOV. *Am J Ophth* 1935 18 4
The diastolic influence of the normal rabbit conjunctiva on beta hemolytic streptococci G H GOSW. *Am J Ophth* 935 8 40
Streptococcal pseudomembranous conjunctivitis H C KIRBY. *Am J Ophth* 935 8 994
The diagnosis and treatment of trachoma F L Goss. *Texas State J M* 935 3 54
X rays and radium in the treatment of tumors of the conjunctiva G PRINCE. *Radiology* 1935 3 745
An improved lid crutch W M LORR. *J Arch Ophth* 935 4 979
Voluntary control of accommodation W ZIMMERMAN. *Am J Ophth* 935 8 24
The relation of strabismus to right or left-sidedness W H FINE and B B WAGNER. *Arch Ophth* 1935 4 947
The technique of orthoptic training in squint L C PRINCE. *Arch Ophth* 935 4 973
Forceps for use in surgical operations on the ocular muscles C BERRY. *Arch Ophth* 935 14 990
The surgical correction of pure convergence insufficiency R O'CONNOR. *Arch Ophth* 935 4 986
Decrystronomics in children R O KIRBY. *Am J Ophth* 935 8 4
The laryngeal content of tears W M JAMES. *Am J Ophth* 935 8 99
Facial methods, degeneration of the cornea A BAI. *Arch Ophth* 935 4 995
Problems of acute cataract S R GIFFORD. *J Indiana State M Ass* 935 26 647

BIBLIOGRAPHY OF CURRENT LITERATURE

397

Histopathological characteristics of nutritional cataract in the white rat. W M DODGE, JR Arch Ophth, 1935, 14 922

Cataracts produced in albino rats on a ration containing a high proportion of lactose or galactose A M YUDKIN and C H ARNOLD Arch Ophth, 1935, 14 960

Dinitrophenol cataract W Z RUNDLES J Michigan State M Soc., 1935, 34 777

The phospholipid content of cataractous human lenses P W SALIT Brit J Ophth, 1935, 19 663

The treatment of sarcoma of the uvula tract. W G M BYERS and J A MACMILLAN Arch Ophth, 1935, 14 967

Studies of the retinal circulation by direct microscopy R K LAMBERT Am J Ophth, 1935, 18 1003 [315]

Congenital retinal fold I MANA Brit J Ophth, 1935, 19 641 [315]

Detachment of the retina, an instrument for transillumination and diathermy treatment J LJ6 PAVIA and M DUSSELDORP Rev oto-neuro oftalmol y de cirug neurol. Sud-Americana, 1935, 10 257

The re-attached retina, physiological, ophthalmoscopic, and microscopic observations and comparisons E B SPAETH Arch Ophth, 1935, 14 715 [315]

Chorioretinitis syphilitica treated with arsphenamine L TSHERNOFF Med Rec, New York, 1935, 142 545

Paracentral homonymous hemianopic scotoma O BARKAN and S F BOYLE Arch Ophth, 1935, 14 957

Electrical responses accompanying activity of the optic pathway G H BISHOP Arch Ophth., 1935, 14 992

Ear

Anatomical anomalies of importance to the otolaryngologist. O V BATSON Ann Otol, Rhinol. & Laryngol, 1935, 44 939

An analysis of over 4,000 cases of educational deafness studied during the past twenty-five years. M YEARSLEY Brit J Child Dis, 1935, 32 264

Streptococcus hemolyticus bacteremia, with special reference to otolaryngological conditions J L GOLDMAN and G SCHWARTZMAN Ann. Otol, Rhinol. & Laryngol., 1935, 44 961

Acute suppurative otitis media in measles. A report of 427 patients. H J WILLIAMS Ann Otol, Rhinol. & Laryngol., 1935, 44 956

Clinical study on sinus thrombosis due to acute otitis media H R GADOLIN Acta Soc. med. Fennicae Duodecim, 1935, 20 Fasc. 2-3

Endocranial complications of suppurative otitis media J M ALONSO Rev oto-neuro oftalmol y de cirug neurol. Sud-Americana, 1935, 10 265

Recording of clinical labyrinth tests J H HULEA Laryngoscope, 1935, 45 929

Suppuration of the petrous pyramid. I FRIESNER, J G DRUSS, H. ROSENWASSER, and S ROSEN Arch. Oto laryngol., 1935, 2 659 [316]

Symposium on certain fundamentals in regard to sup- puration of the petrosal pyramid S J KOPETZKY, S R. GULD, M F JONES, J G WILSON, and others Ann Otol, Rhinol. & Laryngol, 1935, 44 1002 [316]

The pathogenesis of otogenous abscess of the temporal lobe A preliminary report. C B COURVILLE and J M NIELSEN West. J Surg, Obst. & Gynec., 1935, 43 681

Nose and Sinuses

The architecture of the blood vascular networks in the erectile and secretory lining of the nasal passages P F SWINDLE Ann. Otol, Rhinol. & Laryngol., 1935, 44 913

Regeneration of the nasal mucosa L R BOLLING Arch Otolaryngol, 1935, 22 689

Abscess of the nasal septum complicating endonasal operation for antral suppuration F D MARSH J Laryngol. & Otol., 1935, 50 909

Congenital fibro-epithelial cyst of the nasal vestibule, a review of theories of pathogenesis. J A WELLS Ann. Otol, Rhinol. & Laryngol., 1935, 44 993

Carcinoma of the nose D F A. NEILSON Proc. Roy Soc. Med., Lond., 1935, 29 192

Our experiences with cartilage transplants in rhinoplasty A SERCER Verhandl d r Kong jugoslav chir Ges, 1934, 4 511

Myochoondroma of the nasopharynx A. L. YATES Proc. Roy Soc. Med., Lond., 1935, 29 190

The effect of physical agents on the temperature of the nasal sinuses H. K. TEBBUTT, JR. Arch Otolaryngol, 1935, 22 733

The association of filtrable virus and bacteria in the production of experimental sinusitis. C S LENTOV Ann. Otol, Rhinol. & Laryngol., 1935, 44 948

Osteomas of the nasal accessory sinuses, with the report of a case illustrating the transcranial approach to orbital structures. W B HOOVER and G HORRAA. Surg, Gynec. & Obst., 1935, 61 821

The treatment of acute frontal sinusitis. T B LAYTON Lancet, 1935, 229 1345

The sphenoid on parade J A. CAVANAUGH Laryngoscope, 1935, 45 911

Actinomycosis of the sphenoid with actinomycotic meningitis and brain abscess. R. KRAMER and M L SOX. Ann Otol, Rhinol. & Laryngol., 1935, 44 973

The treatment of maxillary sinus suppuration. J F O'MALLEY Brit. M J, 1935, 2 1139

Mouth

Successful treatment of noma with formaldehyde. S I. McMILLEN Am J Dis. Child., 1935, 50 1495

Cancer of the lip L T LEIFER. Nov Khir arkh, 1935, 34 152

Cancer of the lip in the Ural region T F BEREZIN Nov Khir arkh, 1935, 34 165

Treatment of cancer of the lip H. E. MARTIN Am. J Surg, 1935, 30 215 [317]

Irradiation methods in the treatment of cancer of the face and lips J M MARTIN Texas State J M., 1935, 31 497

The value of speech training in cleft palate and other mouth conditions E E SCHARFE Canadian M Ass. J, 1935, 33 641

An orthopedic operation for cleft palate. D BROWNE Brit. M J, 1935, 2 1093

The technique and results of uranoplasty AXHAUSEN Deutsche med Wchnschr, 1935, 2 1234. Zentralbl f Chir, 1935, p 2211

Tongue and stomach. P CHEVALLIER and F MOUTIER. Presse méd., Par, 1935, No 92 1801 [318]

Glossodynia reflex irritation from the mandibular joint as the principal etiological factor, a study of ten cases. J B COSTEN Arch Otolaryngol, 1935, 22 554. [318]

Radiation therapy of tongue carcinoma. R. A. GARDNER. Brit. M J, 1935, 2 1090

Radiation therapy of malignancy of the tongue I I. KAPLAN Am. J Surg, 1935, 30 227 [319]

Pharynx

The sore throat in early syphilis. J W BRITTINGHAM Ann Otol, Rhinol. & Laryngol., 1935, 44 990

Tuberculosis of the pharynx. F A LAY. *Chn. y lab* 1935, 20, 963.
 Variations of the palatine tonsils and the accuracy of diagnosis by the method of Stöder. A C RUSCH. *Chn. y lab*, 1935, 20, 372.

Chronic tonsillitis in the adult. A clinical, bacteriological and pathological study. T N HUNNICUTT, JR., H J STEINHAUSE, and H E MACLEAN. *Arch. Otolaryngol.* 1935, 2, 744.

Glyphuric tonsillitis, histopathology in the secondary stage. E R. POWERS and G H BRAWNER. *Ann. Otol., Rhinol. & Laryngol.* 1935, 44, 984.

The treatment of various types of tonsillitis. H RUSCH and K. H. SCHUBERT. *Ramengia internaz. di clin. e terap.* 1935, 16, 903.

A new instrument for the treatment of peritonsillar abscess. I B GOLDMAN. *Laryngoscope*, 1935, 45, 905.

The practical management of malignancies of the tonsil. C EDESSON. *Am. J. Surg.* 1935, 30, 354. [319]
 Shuder's method of tonsillectomy. E LAURICHER. *Schweiz. med. Wchschr.* 1935, 2, 636.

Tonsillectomy in pulmonary tuberculosis. B. BROADWELL. *Illness* M. J. 1935, 68, 536.

A comparison of the tonsillar cavity. C F R. VERRILL. *Seminars med.* 1935, 42, 1017.

Mixed tumor of the retrotonsillar space: report of a case. A H FRANK. *Arch. Otolaryngol.* 1935, 22, 715.

Cancer of the epiglottis, total extirpation of the epiglottis by the laryngofissure route. G TUCKER. *Ann. Otol. Rhinol. & Laryngol.* 1935, 44, 933.

Neck

Surgery for cervical ribs. R. H. PATTERSON. *Ann. Surg.* 1935, 101, 973.

Fibrosis of the neck. W HORTSMAN. *Zentralbl. f. Chir.* 1935, p. 885.

Carotid body tumor. S. BROCK. *J. Med. Ass. Georgia*, 1935, 34, 45.

Steroidic scirrhous bronchioma. B M FRANK. *Am. J. Cancer* 1935, 5, 738. [319]

Metastatic epidermoid carcinomas of the neck. D QUINN. *Am. J. Surg.* 1935, 30, 307. [320]

The basal metabolic rate, its meaning and interpretation. J D ROBERTSON. *Practitioner* 1935, 35, 780.

Certain factors affecting the consistency of the suspensory angle. A BARNAL. *Endocrinology* 1935, p. 668.

The size and structure of the thyroid gland of the cat after the administration of irradiated ergosterol. A M LAMON and O O STOLANO. *Endocrinology* 1935, 9, 704.

Lateral aberrant thyroids. A L D'ARREU. *Lancet*, 1935, 29, 406.

Diseases of the thyroid gland in children. E A COCKEY. *Practitioner*, 1935, 35, 767.

Hypothyroidism: common symptom. R I LEE. *Ann. Int. Med.* 1935, 9, 71.

Hypothyroidism without myxedema. C FORRELL. *Kentucky M. J.* 1935, 33, 575.

Myxedema. O L V DE WISSELOW. *Practitioner*, 1935, 35, 757.

The value of blood sediment estimation in the diagnosis of hyperthyroidism. H J FRANK. *Surg. Clin. North Am.* 1935, 5, 1635.

Some of the newer developments in hyperthyroidism and hyperparathyroidism. F H LARRY. *Minnesota Med.* 1935, 28, 76.

Stages operations in hyperthyroidism. F H LARRY. *Surg. Clin. North Am.* 1935, 5, 161.

Goffe. Practical points. M S ROBERTSON. *Kentucky Med.* 1935, 34, 468.

Chronic non-specific thyroiditis. J G LEE. *Arch. Surg.* 1935, 3, 984. [320]

Thyroidectomy, its surgical aspects. Sca T DUMALL. *Brit. M. J.* 1935, 1934. [321]

Thyroidectomy in children, with report of two cases of exophthalmic goiter. C J BLOOM. *South M. J.* 1935, 28, 123.

The basal metabolism in the diagnosis of exophthalmic goiter. C ALVAREZ, F GARCIA, and E GRANT. *Rev. med. d. Rosario*, 1935, 35, 1045.

Experimental Basedow's disease due to thyroidectomized substances from the anterior lobe of the hypophysis, with particular reference to the function of the adrenal glands. M. AMANO. *Arch. f. klin. Chir.* 1935, 181, 303.

Basedow's disease and hyperthyroidism in pregnancy. R B MORDA. *Seminars med.* 1935, 42, 1279.

Röntgen irradiation for Basedow's disease and thyrotoxicosis, with particular reference to associated apoplexy. M. OCHLOW. 1935. Gerschwald, Bamberg.

The medical treatment of toxic goiter. F R FRANK. *Practitioner* 1935, 35, 790.

Principles of surgery in thyroid surgery. C F SHERWIN. *J. Missouri State M. Ass.* 1935, 31, 473.

Thyroid crisis, with the report of a case following operation. O F METTERER. *Colorado Med.* 1935, 32, 975.

The location and preservation of the parathyroid glands. J W HEDGECOCK. *Am. J. Surg.* 1935, 30, 400.

Hyperparathyroidism. F H LARRY. *Surg. Clin. North Am.* 1935, 5, 1637.

Surgery of the parathyroid glands. E M ACHLAFOR. *Nov. Klin. wchh.* 1935, 24, 27.

The treatment of laryngeal tuberculosis. R S WOOD. *West Virginia M. J.* 1935, 31, 352.

Radiotherapy of cancer of the larynx. M. LEE. *Am. J. Surg.* 1935, 30, 350. [321]

Cancer of the larynx. A study of 203 cases with and results. S W GARRIN. *New England J. Med.* 1935, 217, 100. [322]

Three cases illustrating the permanency of cure and adequate voice after operation for intrinsic cancer of the larynx by the laryngofissure route. S. THORNTON. *Proc. Roy. Soc. Med. Lond.* 1935, 20, 187.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings. Cranial Nerves

Ventriculography via the anterior horns. E F FRICKER. *J. South M. J.* 1935, 28, 108.

The non-operative care of head injuries. P WOOD. *Colorado Med.* 1935, 32, 968.

Cranial trauma with fracture of the left parietal bone in an infant of twenty months. G A SCHWARTZ and E. IGARASHI. *Seminars med.* 1935, 4, 1407.

The modern treatment of cerebrocerebral apoplexy, with especial reference to the maximum permissible mortality and morbidity. D MUNRO. *New England J. Med.* 1935, 213, 863. [323]

The surgical management of head injuries. J E A. CORWELL. *Colorado Med.* 1935, 3, 97.

The late sequelae of fracture of the skull. J ALFARANT and R. SPATZAROVIC. *Verhandl. d. Kong. jugoslav. chir. Ges.* 1934, 4, 486.

- A clinical evaluation of collapse therapy measures in the treatment of pulmonary tuberculosis T J KIDWELL J Lancet, 1935, 35 759
- The choice of procedure in collapse therapy E J O'BRIEN J Thoracic Surg, 1935, 5 123
- An attempt at collapse therapy and chemotherapy for pulmonary tuberculosis in Dakar M. BLANCHARD ITHEC med Par, 1935, 43 775
- Pneumothorax in daily practice A IENCHER 1935 Vienna, Leipzig and Bern, Weinmann
- Advances in pneumothorax G H PARKERDALE West Virginia M J, 1935, 3 433
- Twenty years' experience with artificial pneumothorax A study of 460 cases A F MILLER, C J W BRACKWITZ, A A GUYRE, H R CORBETT and A V FRASER, Canada M Am J, 1935, 33 690
- Temporary versus permanent pleural paralysis R H OVERHOLT and J S. HARTER, Surg Clin North Am, 1935, 5 1585
- Primary phrenectomy J L. BONILLA Rev med d Rosario, 1935, 23 005
- Lobectomy in pulmonary tuberculosis S O FRIEDLANDER J Thoracic Surg, 1935, 5 132
- Oleothorax, clinical and experimental J N HAYES Ann I L Med, 1935, 9 779
- The technique of extrapleural thoracoplasty R. PRITIC Verhänd d Kong sessels chir Ges, 1934, 4 414
- The surgical treatment of isolated apical cavities T A. RABNER Soviet Khr, 1935, 5 103
- Separations of the lung Present day ideas with regard to diagnosis and treatment J GARCIA OTTINO An de chir, Havana, 1935, 5 26 [123]
- A study of the microbic flora in lung abscesses V A. GILIN Soviet Khr, 1935, 5 1
- The treatment and prognosis of non tuberculous lung abscess (with an analysis of twelve cases) S B. HALL and H V THOMAS West Virginia M J, 1935, 3 540
- Bronchectomies J B. ELLIS and M. TAMMERSAUM Med Rec New York, 1935, 142 494
- Detelectable bronchectomies Lobectomy recovery E. FLETCHER and T H. SELLORS Proc. Roy Soc. Med., Lond, 1935, 29 9
- Lobectomy for bronchectomies J V. BOWKER Ann. Surg, 1935, 102 976
- Bronchitis and stone asthma E F. FRIEDBERG and A A. DE LORENZO, Radiology, 1935, 25 7
- The treatment of pulmonary gangrene A. LESTER, Chirur, 1935, 7 553
- Aptoid pulmonary necrosis with the report of case J. GUTENBERG Rhode Island M J, 1935, 18 179
- Congenital cystic lung report of multiple cysts within an accessory lobe M J. THORPE Ann J Roentgenol, 1935, 34 734
- Bronchocopy in a pulmonary dermal inclusion cyst J C. BENT Ann Otol, Rhinol & Laryngol, 1935, 44 59
- Congenital cystic disease of the lungs A review of the literature and report of three cases W E ADAMS and W W SWANSON Internat Clin, 1935, 4 305
- Progressive idiopathic pulmonary fibrosis associated with emphysema A O HAMPTON New England J Med, 1935, 3 74
- Supra pulmonary salivary tumor A E. COVIELLY Brit J Radiol, 1935, 8 78
- The treatment of a series of cases of so-called carcinoma tumors of the bronchi by diathermy A report of ten cases J D. KIRBY Ann Otol Rhinol & Laryngol, 1935, 44 67
- T O cases of malignant disease of the bronchi F C. CUMBERSON Proc Roy Soc Med., Lond, 1935, 29 9

- Primary carcinoma of the bronchi treated successfully with surgical diathermy H J. MORTON and H H. BOWEN Ann Surg, 1935, 102 969 [122]
- The rôle of bronchocopy in thoracic surgery W B. BOOBER, Surg Clin North Am, 1935, 15 1905
- Comparative studies of various types of cannula used for the drainage of intrapleural adhesions J A. PACHA Med Ibera, 1935, 9 654
- Right middle lobectomy R H. OVERHOLT Surg Clin North Am, 1935, 15 575
- Casepneumothorax changes in the remaining lung following total pneumonectomy An experimental study W F. RICHMOND JR, F L. RICHMOND, and G J. HILLER Bull. Johns Hopkins Hosp. Balt., 1935, 57 372 [127]
- The treatment of acute emphysema D HART Internat Clin, 1935, 4 184

Heart and Pericardium

- An experimental study of the effects of constriction of the great vessels of the heart W J. KIRBY, Surg Gynec & Obst, 1935, 61 765
- Studies on the volume output of blood from the heart in anesthetized dogs before thoracotomy and after thoracotomy and intermittent or continuous inflation of the lungs R. L. MOORE, G H. HUGHES, and W R. WILCOX J Thoracic Surg, 1935, 5 195
- Electrocardiographic studies of stab wound of the heart G L. DAVIDSON, B. HUBERT, and S C. +. TELL J Thoracic Surg, 1935, 5 308
- Posterior drainage in septic pericarditis R. L. MOORE Ann Surg, 1935, 102 680 [129]

Esophagus and Mediastinum

- Esophageal strictures T E. CARRSOT Ann Otol Rhinol & Laryngol, 1935, 44 102
- A preliminary survey of the effect which lye ingestion has had on the incidence of stricture of the esophagus H M. TAYLOR Ann Otol Rhinol & Laryngol, 1935, 44 7157
- Esophageal obstruction diagnosis and treatment M. ECKERT South M J, 1935, 28 103
- Prothoracic esophagoplasty for congenital stenosis A. JUNG, F. FRIEDLICH, and F A. SCHLAFY Pruss med Par, 1935, No 22, 1890
- Devascularization of the esophagus GARDNER Bull et infes. Soc nat de chir, 1935, 6 309
- A report of proved cured case of squamous-cell epithelioma of the esophagus treated by intra esophageal and external irradiation. A. CAHNEY and H. KAMARICH J Thoracic Surg, 1935, 5 57 [127]
- Primary esophageal carcinoma, with special reference to its increasing variety, clinicopathological study based on 106 necropsies R W. MATHIAS and T C. SCHWARTZ J Am M Am, 1935, 105 301 [120]
- Report of case of esophagogastritis, say for carcinoma of the esophagus H R. DICKER J Thoracic Surg, 1935, 5 143
- Transpleural removal of the total thoracic esophagus A T. EDWARDS Proc. Roy Soc Med Lond, 1935, 29 123

Miscellaneous

- Penetrating wounds of the chest, observations on a recent experience J D'HUICOURT and M D'HUICOURT Actas Soc de chir de Madrid, 1935, 4 195 [120]
- A case of intrathoracic lipoma A C. ARMOTT and E G S. WILSON Canadian M Am J, 1935, 33 660

- Respiratory physiology in thoracic surgery C A McINTOSH *Ann Surg*, 1935, 102 901 [330]
 The mechanism of subcutaneous injuries involving the diaphragm N S FELICHMAN *Soviet. Khir*, 1935, 4 66 [331]
 Diaphragmatic hernia in children, with a report of thirteen operative cases. P F TREESDALE. *New England J Med*, 1935 213 1159 [331]

- Right sided diaphragmatic hernia, with a report of three cases H D KERR and S S STEINBERG *Am J Roentgenol*, 1935, 34 735 [332]
 Myosarcoma of the diaphragm. J D KIRSINBAUM. *Am J Cancer*, 1935, 25 730 [331]
 The technique and physiological consequences of operations on the diaphragm H COSTANTINI and G MENE- GAUX *J de chir*, 1935, 46 507, 548 [332]

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

- Epigastric hernia P MOURA and M AUTRAN *Folha med.*, 1935, 16 501
 The technique and results of operation for umbilical hernia in young men S P VILESSOV *Soviet. Khir*, 1935, 4 61 [331]
 Inguinal hernia in infants A S VAINSTEIN *Soviet. Khir*, 1935, 4 54 [331]
 The use of fascia lata in the repair of inguinal hernia. N W SWARTON and L J SCHWARTZ *Surg Clin North Am.*, 1935, 15 1653 [331]
 Postoperative or ventral hernia, a method for the relief of tension after repair A R DICKSON *Surg, Gynec & Obst*, 1935, 61 836 [331]
 Sliding hernias. V A GURK. *Soviet. Khir*, 1935, 4 47 [331]
 A case of cellulitis of the hypogastric region P GIOR DANO *Semina méd*, 1935, 42 1325 [331]
 Peritoneal adhesions. E. KATZMAN *Beitr z Klin Chir*, 1935, 161 599 [335]
 Pneumococcal peritonitis C K SCHLAANING *Acta chirurg Scand*, 1935, 77 256 [336]
 Tuberculous peritonitis L ADAM *Orvosekészet*, 1935, 25 9 [336]
 Pantonization of wound surfaces of the small bowel S E. WICHMANN *Ann inst. obst. et gynec. univ*, Helsinki, 1934, 10 589 [336]
 The surgical treatment of mesenteric cysts. N MILJANIC. *Verhandl. d. 1 Kong. jugoslav. chir. Ges*, 1934, 4 660 [336]

Gastro-Intestinal Tract

- Postoperative treatment after gastro-intestinal operations V P VOZNESENSKY *Nov. Khir Arkh*, 1935, 34 82 [336]
 Gastroscopy with the flexible gastroscope C L JACKSON. *Ann. Otol., Rhinol. & Laryngol.*, 1935, 44 1150 [336]
 Practical experiences with gastric diseases in the surgical clinic. E. RUGE. *Med Welt*, 1935, p 1212 [336]
 Foreign body in the stomach P PARKINSON *Med J Australia*, 1935, 2 787 [336]
 Experimental study on the pyloric mechanism C GIANTURCO *Illinois M J*, 1935, 68 547 [336]
 Remarks on pyloric obstruction in early infancy E P COPELAND *South. M J*, 1935, 28 1132 [336]
 The management of pyloric obstruction E D KIEFER. *Surg Clin North Am*, 1935, 15 1431 [336]
 The treatment of gastric stenosis following chemical burns T V DAMLOV and V S MAJAT *Soviet. Khir*, 1935, 5 131 [336]
 Hour-glass contraction of the stomach J J GILBRIDE *Internat. Clin.*, 1935, 4 230 [336]
 Spontaneous ruptures of the stomach. S M RUBASHOV *Soviet. Khir*, 1935, 4 80 [336]
 A case of subcutaneous traumatic rupture of the stomach K OYATIAN *Soviet Khir* 1935, 4 150 [336]

- The elevated blood urea of acute gastro intestinal hemorrhage and its significance. A P INGEGNO *Am J M Sc.*, 1935, 100 770 [336]
 Trichobezoar (hair cast of the stomach) C F POTTER *New York State J M*, 1935, 35 1183 [336]
 An experimental visceral infarct. R GRIGORE and R COUVELAIRE *Bull et mécm Soc. nat. de chir*, 1935, 61 1174 [336]
 Peptic ulcer—gastric, duodenal, and jejunal F H LANEY *Surg Clin North Am*, 1935, 15 1401 [336]
 Late concepts of peptic ulcer etiology, and a preliminary report of modern therapy H M F BENSEMAN *North-west Med.*, 1935, 34 453 [336]
 The diagnosis and treatment of gastric and duodenal ulcers V PUCCINELLI *Polichin, Rome*, 1935, 42 sez prat 2195 [336]
 Alcoholization of the lesser omentum in gastric ulcer A S BOGATOV *Soviet Khir*, 1935, 4 91 [336]
 Cod-liver oil Preliminary treatment, primarily for inoperable gastric ulcer W LOHR. *Zentralbl f Chir*, 1935, p 2362 [336]
 Surgical treatment of peptic ulcerations (Billroth I method) M E STEINBERG *Am. J Surg*, 1935, 30 490 [336]
 The treatment of perforated gastric and duodenal ulcers by gastropyloroplasty OLIVIER *Presse med*, Par, 1935, 43 1758 [336]
 Benign tumors of the stomach C CARLI *Arch ital di chir*, 1935, 60 441 [336]
 Benign tumors of the stomach I SZABO *Orvosekészet*, 1935, 25 13 [336]
 A contribution to the knowledge of carcinoid of the stomach. V PETTINARI *Arch ital di chir*, 1935, 40 695 [336]
 Carcinoma following gastric and duodenal ulcer P K SAUER. *Ann Surg*, 1935, 102 995 [336]
 The choice of procedure in cancer of the stomach and in gastric and duodenal ulcer R E PASMAN *Bol. y trab Soc. de cirug de Buenos Aires*, 1935, 14 1030 [336]
 Palliative irradiation of gastric cancer G T PACK, I M SCHARNAGEL, E H. QUTIMBY, and M C LOIZEAUX. *Arch. Surg*, 1935, 31 851 [336]
 A brief consideration of sarcoma of the stomach, report of a case of primary lymphosarcoma R. DRANE *Am J Roentgenol*, 1935, 34 755 [336]
 Pre operative and postoperative treatment in the management of stomach lesions S F MARSHALL. *Surg Clin North Am.*, 1935, 15 1415 [336]
 Hermetical closure of sutures in gastrojejunal anastomosis T M BOMASH, E T HERZENBERG, and T F KAPLAN *Soviet Khir*, 1935, 5 123 [336]
 Gastric resection by the method of Finsterer A. VÁSA. *Rozhl. Chir a Gynaek. Č. chir*, 1935, 14 147 [336]
 Resection with exclusion by the method of Finsterer G POTORSCHNIG *Arch. ital. di chir*, 1935, 41 181 [336]
 Experimental gastrectomy Effects on the blood morphology, especially when complicated by infection or liver

- damage H. B. SCHWARTZ, Jr., and M. M. WINTROBE. *Bull. Johns Hopkins Hosp.*, Balt. 1935, 57, 84.
- Intestinal obstruction. L. R. SARTY. *Am. J. Surg.* 1935, 51, 744.
- Intestinal obstruction R. A. REIDENBAUGH and H. S. ARNOLD. *Ann. Surg.* 1935, 101, 1040.
- X-ray diagnosis of acute intestinal obstruction. D. H. PARRY and P. B. ASCHOFF. *Brit. M. J.* 1935, 2, 1197.
- A case of intestinal obstruction and subocclusion due to reflux. L. ERICARQUI. *Rev. méd. de la Suisse Rom.*, 1935, p. 904.
- Acute obstruction due to chronic encapsulating peritonitis. P. FURUKI-BRANDANO. *Bull. et mem. Soc. nat. de chir.* 1935, 61, 11163.
- The recognition and treatment of bowel obstruction. W. D. GATON. *J. Indiana State M. Ass.* 1935, 28, 657.
- Giant diverticula or reduplications of the intestinal tract. H. W. HUNTER, Jr. *New England J. Med.* 1935, 213, 1173. [137]
- Intestinal incarceration following laparotomy. E. KAUTMAN. *Ovostkopskiy*, 1935, 25, 59.
- The diagnosis of intestinal tuberculosis. D. ELLIOT. *West Virginia M. J.* 1935, 21, 247.
- Perforative peritonitis in typhoid fever. K. GOLDSMAN. *Mex. Nov. Khr.* 1935, 24, 183.
- Typhoid perforations of the bowel. F. STINA. *Polichia Roma*, 1935, 45, 2nd part, 1864.
- An experimental study on the development of ulcers of the intestines. S. STRASSER. *Bell. et mem. Soc. nat. de chir.* 1935, 61, 11160.
- Enteric cysts. O. B. MAYNE. *Ann. Int. Med.* 1935, 9, 707.
- Single suture in side-to-side intestinal anastomosis. P. M. PEREZKOROVSKY and M. S. KOROVY. *Soviet. Khr.* 1935, 4, 95.
- Total chronic volvulus of the small bowel and of the cecum and ascending colon. M. M. RIEA and R. DASSON. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 10, 979.
- Congenital duodenal obstruction from anomalous mesenteric vessels. E. P. BUCKMAN. *Am. J. Surg.* 1935, 50, 400.
- Diverticulum of the duodenum. J. O. BURTON. *Rev. méd. d. Rosario*, 1935, 25, 969.
- The duodenal sound and the diagnosis of intestinal parasitic infestation. J. D. LEMERY. *Rev. méd. d. Rosario*, 1935, 25, 983.
- Radiological study of adhesive peritonitis. M. KERRY and V. NACRY. *Rev. Assoc. med. argent.* 1935, 40, 2224.
- Duodenal carcinoma, its relationship to duodenal ulcer. I. B. STANLEY. *Radiology*, 1935, 23, 668.
- Closure of the duodenum following resection of the stomach. G. S. TROSOVSKY. *Soviet. Khr.* 1935, 4, 83.
- Closure of the duodenal stump during gastropyloroduodenectomy by simple ligature following crushing. H. MOORE and D. DUBOIS. *Bull. et mem. Soc. nat. de chir.* 1935, 61, 11164.
- Two cases of chronic jejunal obstruction. A. C. VAN RAVENSWAAY. *Surg. Clin. North Am.* 1935, 5, 1447.
- Jejunal ulcer. E. S. JONES and M. T. HORTSMAN. *Ann. Surg.* 1935, 101, 203.
- Personal experience with postoperative peptic jejunal ulcer. M. KONTZ. *Verhandl. d. Kong. jugoslav. chir. Ges.* 1934, 4, 630.
- Carcinoma of the jejunum. H. W. CLAY. *Ann. Surg.* 1935, 101, 1097.
- Carcinoma of the jejunum. R. F. CARTER. *Ann. Surg.* 1935, 101, 1079. [137]
- Emorrhage per rectum as an indication of disease in Meckel's diverticulum. J. T. CROFTMAN. *Brit. J. Surg.* 1935, 2, 267. [138]
- Diverticula and diverticulosis of the colon. C. C. UNDERWOOD. *J. Kansas M. Soc.* 1935, 36, 445.
- The etiology of ulcerative colitis. P. G. MORRIS and P. D. SANJUAN. *Rev. méd. de Barcelona*, 1935, 11, 164.
- Ulcerative colitis. A. F. HENRY. *Guy's Hosp. Rep.*, Lond. 1935, 25, 2. [139]
- Villous tumors of the colon and rectum. Clinical observations and pathologic-anatomical studies of operative material at the Schneider Clinic. H. JORDAN. *Ergeb. d. Chir.* 1935, 26, 1. [139]
- Carcinoma of the colon. H. B. DEVERE. *Brit. M. J.* 1935, 2, 243.
- Carcinoma of the colon complicated by abscess. L. STROTHMANN. *Ovostkopskiy*, 1935, 25, 20.
- Multiple carcinomas of the colon. P. KLIMOSKOV. *Ann. Surg.* 1935, 101, 979.
- Secondary carcinomas of the large bowel. E. L. YOUNG, Jr. *New England J. Med.* 1935, 2, 4, 1819.
- Empyema of the colon. L. L. HANSEN. *J. Am. M. Ass.* 1935, 105, 984.
- Rupture of the meso-appendix in a case of abdominal injury. H. BRIDGES. *Soviet. Khr.* 1935, 4, 158.
- Traumatic appendicitis. U. MARS and E. M. McFERRIN. *Am. J. Surg.* 1935, 50, 478.
- Appendicitis in children. T. T. MINOSKOV. *Soviet. Khr.* 1935, 4, 16.
- Appendicitis in Puerto Rico. W. R. CALDERIN and F. G. LAWIE. *Am. J. Surg.* 1935, 50, 483.
- The obliterative type of acute appendicitis. J. OLIMERIC. *Bull. et mem. Soc. nat. de chir.* 1935, 61, 11169.
- Acute retrocecal, retrocaecal, and subserosal appendicitis. THIRIVAKO. *Bull. et mem. Soc. d. chirurgie de Par.* 1935, 27, 474.
- Report of a case of acute suppurative appendicitis complicated by multiple liver abscesses. W. P. RANNEY. *Vergl. M. Month.* 1935, 6, 1.
- Painful ileus in acute appendicitis. W. S. RANNEY. *Proc. Roy. Soc. Med. Lond.* 1935, 29, 163. [140]
- On the frequency of nervous lesions of the vermiform appendix. "Vermiform appendicitis." L. C. EDWARDS. *Can. med. M. Ass. J.* 1935, 23, 518. [140]
- Floating right colon: partial secondary embolitic fixation of the cecum, chronic obstruction, interstices, recovery. THIRIVAKO. *Bull. et mem. Soc. d. chirurgie de Par.* 1935, 27, 477.
- Obstruction of the sigmoid colon. A. V. BRUNYAT. *Soviet. Khr.* 1935, 4, 103.
- Volvulus of a sigmoidobesigmoid with retractile mesoappendix. L. BILUTSKI. *Russkaya literatura d. chir. teory*, 1935, 10, 106.
- Permanent cure of a large rectal prolapse. H. FRIEDMAN. *Zentralbl. f. Chir.* 1935, p. 2452.
- Complete rectal occlusion accompanying colostomy due to carcinoma of the prostate. J. A. LAMARCA. *Am. J. Surg.* 1935, 50, 503.
- Pre-operative radium treatment of rectal carcinoma. H. H. BOWDIE and R. E. FISCHER. *Am. J. Roentgenol.* 1935, 34, 766.
- Radiography in certain types of carcinoma of the rectum and anus. GILBERT. *Bull. et mem. Soc. nat. de chir.* 1935, 61, 11.
- Surgical treatment in two cases of congenital fusion of the anus and vulva by the use of perineal fissure. A. T. A. FORTO. *Bol. Sociedade Geral de Saude e Assist.* 1935, 93.
- Three years' experience with the resection treatment of hemorrhoids in the Second Surgical Clinic of Vienna. E. EXNER. *Wien. Klin. Wochenschr.* 1935, 1078.
- Surgical treatment of hemorrhoids. J. C. FERNANDES. *Semin. med.*, 1935, 42, 458.

Enlargement of the axillary lymphatics. E. M. MARTO-
LIN. *Soviet khir.* 1935, 4, 41.
Sclerophene abscesses. R. L. MARCHETTA and R. V.
CHURCH. *Rev. méd.-quirurg. de patol. feminae*, 1935,
3, 59. [344]

Retroperitoneal chyle cyst. S. F. STRATTON and B. E.
SAYRE. *Ann. Surg.* 1935, 102, 1118.
Closure without drainage in the treatment of hydatid
cyst of the abdomen. O. F. MARTEL. *Bol. y trab. Soc.
de ciruj. de Buenos Aires*, 1935, 14, 1064.

GYNECOLOGY

Uterus

Follow up studies of operations for uterine prolapse.
M. LARRO. *Ann. Inst. obst. et gynec. univ. Liebigshofen*,
1935, 6, 690.

Total colectomy in the treatment of certain cases of
prolapse of the uterus. E. NICHOLSON. *Bol. Soc. de obst.
y gynec. de Buenos Aires*, 1935, 14, 645.

The Alexander Adams operation. E. THOMAS. 1935.
Colague, Dissertation.

The blood vessels of the in situ uterus of the rabbit.
E. A. GERRARD. *J. Obst. & Gynec. Brit. Emp.* 1935,
42, 1045.

Hysteroscopy. A. HUMANT and C. THOMAS.
Rev. franc. de gynec. et d'obst., 1935, 30, 771. [345]

The diagnosis and treatment of uterine bleeding. E. H.
BLACK. *Birth* 1935, 32, 1143.

Hypoplasia of the endometrium with special reference
to a common histological picture in cases of functional
uterine bleeding. W. M. WILSON. *West. J. Surg. Obst.
& Gynec.*, 1935, 43, 670.

What shall we do with the unhealthy cervix. G. H.
GARDNER. *Illness* 1935, 66, 517.

Excessive hypertrophic elongation of the cervix treated
by diathermy coagulation. J. E. MARTEL. *Compt. rend.
Soc. franc. de gynec.* 1935, 3, 13.

Chronic cervicitis, treatment. A. CAYRELLA. *Bol. Soc.
de obst. y gynec. de Buenos Aires*, 1935, 14, 630.

Latro-uterine gas gangrene with recovery. W. D. CAR-
RELL. *Am. J. Obst. & Gynec.* 1935, 30, 818.

Infarct of the uterus. MOGOLYT and BERNARD. *Bull. et
seuil. Soc. nat. de chir.* 1935, 61, 1, 3.

Tuberculosis of the cervix stem. V. S. COVNERILLER and
D. C. COLLINS. *Am. J. Obst. & Gynec.*, 1935, 30, 830. [345]

Embryonal cysts of the cervix and their etiology, with a
report of two cases. J. KOTZ. *Am. J. Obst. & Gynec.*,
1935, 30, 854.

Cysts of the uterus. G. JEANROGER. *J. de méd. de
Bordeaux*, 1935, 3, 815.

Two cases of fibromyoma of the round ligament of the
uterus. O. PALUCHOWA and H. WÓJCICKI. *Ginek. polska*,
1935, 4, 308.

Material for the study of uterine myomas. II. The deter-
mination of the functional condition of various endocrine
glands. T. ZAWOJITSKI. *Ginek. polska*, 1935, 14, 691.

Myoma of the uterus and appendicitis. O. JEANROGER.
Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 639.

Angiomyoma of the cervix. GOSTENKOV. *Compt. rend.
Soc. franc. de gynec.* 1935, 3, 169.

Penalties of the biopsy in uterine malignancy. J. W.
KIRBY. *Med. Rec., New York*, 1935, 143, 500.

Rapid diagnosis of cancer of the cervix. E. FORTU-
CH. *y lab.* 1935, 30, 390.

Carcinoma of the cervix of the uterus. O. K. MURRAY,
G. S. SHARP, R. S. BROWN, and V. C. HUNT. *California &
& West. Med.*, 1935, 43, 487.

The pathology of carcinomas of the cervix. BROWN.
New Zealand M. J. 1935, 34, 370.

Cancer of the cervix: symptoms and diagnosis. T.
PENGERT. *Med. Rec., New York* 1935, 143, 530.

Cancer of the cervix, etiology and prevention. G. G.
WARD. *Med. Rec., New York*, 1935, 14, 517.

Cancer of the cervix, clinical and histological types.
W. P. HEALY. *Med. Rec., New York*, 1935, 143, 552.

Carcinomatous uterine cyst. H. L. LINDERHOLM.
Zentralbl. f. Gynec., 1935, p. 1688.

Mistakes from cancer of the cervix and radiation
complications. T. PENNANT. *Med. Rec., New York*,
1935, 143, 557.

The rebel of pain in carcinoma of the cervix. C. A.
BENNETT. *Med. Rec., New York*, 1935, 143, 551.

Chalal study of treatment of cancer of the uterus.
A. J. BENNETT. *Rev. méd.-quirurg. de patol. feminae*,
1935, 3, 443.

An improved technique for radium treatment of cer-
vical cancer of the uterus. H. SCHWARTZ and H. E. SCHWARTZ.
Am. J. Roentgenol. 1935, 34, 750.

The reaction of the vesicovaginal and rectovaginal septa
to irradiation in cases of cancer of the uterus. O. FA-
RQUET. *Radial. med.*, 1935, 31, 993.

Anticarcinoma of the ovary in operations for carcinoma
of the cervix. G. TERNANOV. *Zentralbl. f. Gynec.* 1935,
p. 831.

The treatment of carcinoma of the cervix by Wertheim's
operation. V. BOROVY. *Am. J. Obst. & Gynec.* 1935,
30, 815. [346]

Operative treatment of cancer of the cervix by the
method of Schuchard, Schenck, and Schuchard, based on
personal cases. W. ROMAN. *Ginek. polska*, 1935, 4, 405.

The tragic history of intrauterine diathermocoagulation.
J. E. MARTEL. *Compt. rend. Soc. franc. de gynec.* 1935,
3, 168.

Diagnostic biopsy from the uterus during laparoscopy.
H. OTTOW. *Zentralbl. f. Gynec.* 1935, p. 2, 30.

Fixation of the uterine stump following hysterectomy.
REYNOLD. *Compt. rend. Soc. franc. de gynec.*, 1935, 3,
77.

Adnexal and Peritartose Conditions

Internal fistula in disease of the female genitalia. E.
PALUCHOWA. *Ann. Inst. obst. et gynec. univ. Liebigshofen*,
1935, 10.

Intra-lymphatic varicocele of the round ligament. D.
MARTEL. *Zentralbl. f. Gynec.* 1935, p. 8244.

Echinococcal cyst of the broad ligament. A. MURRAY.
Chin. med., 1935, 37, 648.

Broad ligament cyst, with report of a new treatment.
J. H. SCHWARTZ. *Med. Rec., New York*, 1935, 43, 401.

Absence of the left tube and ovary. C. P. WATTS.
Illness 1935, 66, 516.

Congenital dilatation of the fallopian tube and tubal
sterilization. H. OTTOW. *Zentralbl. f. Gynec.*, 1935, p.
3303.

Torsion of the fallopian tube. M. TERNANOV. *Compt.
rend. Soc. franc. de gynec.* 1935, 3, 81.

Follicular hormone and ovulation inhibition. G. DANI-
ELSON. *J. Obst. & Gynec. Brit. Emp.* 1935, 42, 955.

The effect of follicular hormones on the blood sugar.
S. LINDERHOLM. *Ginek. polska*, 1935, 14, 617.

- Conservation in gynecology V. S. COHEN. Ohio State M. J. 935, 311940.
 Appendicitis and ectopic ovaries in state medical practice. H. OROUSOWSKI. Polska Gaz. lek., 1935, p. 661.
 Pre-operative and postoperative treatment in gynecological patients. H. E. LANCASTER. Texas State J. M. 935, 311907.
 Section of the promotor nerve in gynecology. F. DRALANČIĆ. Lječ. Vjesnik, 1935, 57, 32.

- Studies in the healing of laparotomy incisions in gynecology. A. O. I. TURKOVIC. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10.
 Postoperative adhesions following laparotomy and methods for their prevention. A. O. I. TURKOVIC. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 605.
 Clinical experience with cocaine as short anesthetic in gynecology. A. GOSTAR. Zentralbl. f. Gynæk. 1935, p. 2006.

OBSTETRICS

Pregnancy and Its Complications

- Prenatal care. M. STRALA. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 25.
 Experiences with the chemical diagnosis of pregnancy by the method of Kapell and Adler. A. BRONK. Zentralbl. f. Gynæk., 1935, p. 2303.
 The value of the improved Kappell-Adler alkaline test in the early diagnosis of pregnancy. J. ROTENBLAT. Obst. Polska, 935, 14, 590.
 Amniography. F. J. HIRSH. J. Obst. & Gynec. Brit. Emp. 1935, 42, 1966.
 Extra uterine pregnancy interrupted in the sixth month. K. HOLZNER. Otrava betu, 1935, p. 970.
 A case of extra-uterine pregnancy carried to term. E. PETEROVIC. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 7, 1.
 A case of advanced abdominal pregnancy. A. BARKAN. J. Obst. & Gynec. Brit. Emp. 1935, 42, 1132.
 A case of cervical pregnancy. D. HINCH. Brit. M. J. 935, 2, 1956.
 A case of pregnancy in the tubal ligation. M. RAMANZO. Monatschr. f. Geburtsh. u. Gynæk., 1935, 100, 17.
 Four unreported cases of interstitial tubal pregnancy which were operated upon. M. SCHNEIDER. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 47.
 The interstitial type of tubal pregnancy. F. N. LOO-WINKE. Monatschr. f. Geburtsh. u. Gynæk., 1935, 100, 144.
 Ruptured interstitial pregnancy. M. REINSTEIN. Am. J. Obst. & Gynec. 1935, 30, 849.
 Abdominal hemorrhage due to a rupture of an ectopic pregnancy. W. T. FORTENBACH. Rev. med. d. Rosario, 1935, 23, 1036.
 The structure of the placental septa and a study of their significance. R. BRAUNER. Copenhagen Jahrb. 1935, 75, 374.
 Placental attachment and separation. L. DROSEN. Am. J. Surg. 1935, 30, 459.
 Premature separation of the placenta. C. CHAUSSO. Ztschr. f. Geburtsh. u. Gynæk., 1935, 111, 7.
 Thirty years' treatment of placenta previa. F. DUBET. Roch. Chir. u. Gynæk. C. gynæk. 1935, 14, 134.
 Results of treating placenta previa in the Helsinki Obstetrical Clinic. H. TIKKAVOON. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 4.
 Placenta accreta. E. HIRSH. Magyar Nőgyógy. 935, 4, 33.
 The determination of sex by the method of Schooner and the application of Mierbe statistical studies. H. KOCH. Zentralbl. f. Gynæk., 1935, p. 581.
 Ante natal diagnosis of gonadoleptia. E. U. WILLIAMS. Brit. M. J. 1935, 2, 206.
 Practical roentgen pelvimetry: a comparison of methods in 100 cases. L. J. FRIEDMAN, L. M. MURIEL, and A. F. ROSENBERG. Surg. Gynec. & Obst. 1935, 6, 733.

- Röntgen pelvimetry and the roentgen prognosis of delivery in cases of abnormal pelvis. E. ROSENBERG. Gynecologia, 1935, 1005.
 Studies on the porphyria aestabolia during pregnancy. R. FRIEDRICHT. Ztschr. f. Geburtsh. u. Gynæk., 1935, 111, 164.
 Granulofluorescent erythrocytes in the circulating blood during pregnancy and the postnatal period. T. M. CARRASCO and C. PEACE. Gynecologia, 1935, 1117.
 The kidney in pregnancy. C. P. WALDORF. Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 50.
 Taste disturbances during pregnancy. R. HANSEN and W. LARSEN. Klin. Wochenschr. 1935, 1, 73.
 Pregnancy and labor in hypophyseal adenoxy. HIRANOVIC. Ztschr. f. Geburtsh. u. Gynæk., 1935, 111, 603.
 Intrauterine fetal death without hemorrhage. K. HIRSH. Zentralbl. f. Gynæk., 1935, p. 1931.
 Physiological considerations and hospital management of bleeding in late pregnancy. E. O. WATSON. Am. J. Surg. 1935, 30, 444.
 A case of spontaneous rupture of a bleb on the external uterus. S. E. WICKHAM. Ann. inst. obst. et gynec. univ. Helsinki, 1934, 10, 303.
 A study of the etiology of premature rupture of the membranes. J. LÉVY. Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 63.
 Silent rupture during pregnancy of the lower segment of the uterus in the case of cesarean section, secondary implantation of placenta previa into the posterior wall of the bladder. M. L. PLATT and F. TALLARIGO. Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 639.
 The anti bacterial value of toxins and its significance in premature rupture of the membranes. A. HANSEN. Helvet. med. Acta, 1935, 2, 255.
 Anemia in pregnancy. M. B. STRAUSS. Internist. Clin. 935, 4, 96.
 Observations on the etiology of the toxemia of pregnancy. The relationship of nutritional deficiency hypoproteinemia, and elevated venous pressure to water retention in pregnancy. M. B. STRAUSS. Am. J. M. Sc. 1935, 90, 81.
 Toxemia of pregnancy, a clinical and pathological study. J. R. GOODALL. Am. M. Ass. 935, 199, 811.
 The problem of pregnancy as a so-called toxemia. Food allergy in pregnancy. G. OWEN. Zentralbl. f. Gynæk. 1935, p. 2325.
 The gastric secretion and motility in normal pregnancy. Symptomatic patients, and in toxic hyperemesis. H. WINKLER. Monatschr. f. Geburtsh. u. Gynæk., 1935, 100, 15.
 A review of eclampsia at the University of Virginia Hospital. D. D. BRANKE. Virginia M. Month., 1935, 44, 571.
 The results of treatment of eclampsia in the Zurich University Gynecological Clinic during the past fourteen years. FREY. Helvet. med. Acta, 1935, 2, 26.

Syphilis and pregnancy J BECKER 1934 Frankfurt a M, Dissertation.

Heart disease in pregnancy R I THURSTON J Iowa State M Soc, 1935, 25 648

Pulmonary tuberculosis in pregnancy BRINDLEY, KOURILSKY, and KOURILSKY Presse med, Par, 1935, 43 1865

Strangulated oöphoro-salpingocele in the left femoral hernia in the fifth month of pregnancy V DI LEANCO and R M BRENO Semana med, 1935, 42 1380

Late results of pyelitis gravidarum H JACOB Zentralbl f Gynaek, 1935, p 2364

Carcinoma of the cervix during pregnancy and labor R PETER Rozhl Chir a Gynaek C gynaek., 1935, 14 151

A thousand cases of abortion T A PARISH J Obst & Gynec. Brit. Emp, 1935, 42 1107

Resistance to proteolysis found in the blood serum of aborting women J SHUTE J Obst & Gynec. Brit. Emp, 1935, 42 1071 [352]

Is estrin the cause of the resistance to proteolysis found in the blood serum of aborting women? F SHUTE J Obst & Gynec. Brit. Emp, 1935, 42 1085 [352]

The treatment of febrile abortion VILACH Rozhl Chir a Gynaek C gynaek., 1935, 14 160

The treatment of abortion and vesicular mole P WEDEL Ugesk. f Læger, 1935, p 820

The diagnosis and clinical picture of missed abortion R PASCHER Muenchen med Wchnschr 1935, 2 1347

Labor and Its Complications

Simplified obstetrical care E D PLASS Minnesota Med, 1935, 18 768

Determining the end of pregnancy by the method of Naegle L KRAUL Wien klin. Wchnschr, 1935, 1 395

Active versus conservative management of planned deliveries J C HIRST Am J M Sc., 1935, 190 806

Further studies on the mechanism of labor W E CALDWELL, H C MOLOV, and D A D'ESORO Am J Obst. & Gynec., 1935, 30 763 [352]

The determination of rupture of the membranes. A G KING Am J Obst. & Gynec., 1935, 30 860

Premature and very early rupture of the membranes, its pathogenesis and treatment. Medical stimulation of labor and the conduct of labor E W WINTER Monatschr f Geburtsh u Gynaek, 1935, 99 332

The control of restlessness in painless labor R A. BARTHOLOMEW and E. D. COLVIN Am J Obst. & Gynec., 1935, 30 866

Tentorial tears in spontaneous labor J SEMRAU 1934 Koenigsberg 1 Pr., Dissertation

The course of labor in older primiparas J PERL Ginek polska, 1935, 14 358

The significance of the shape of the fetal head in the mechanism of labor E RYDBERG J Obst. & Gynec. Brit. Emp, 1935, 42 795 [352]

Constriction ring dystocia L. RUDOLPH J Obst. & Gynec. Brit. Emp, 1935, 42 992 [353]

Critical observations on the changes in the fetal heart tones during engagement of the head in the narrow pelvis H. WITTE 1935 Jena, Dissertation

The mechanism of rotation in occiput-posterior positions. J MANN Canadian M Ass J, 1935, 33 607

Internal over-rotation of the head and forceps delivery R. CORDUA Zentralbl. f. Gynaek., 1935, p 1996 [353]

A rare complication of labor with breech presentation. M MATOUSEK Cas lek. cesk., 1935, p 722

Traumatic birth hemorrhage I TEOLOVA Rozhl. Chir a Gynaek. C gynaek., 1935, 14 152

The treatment of hemorrhages during labor G MUELLER Rozhl Chir a Gynaek C gynaek., 1935, 14 133

Subcutaneous symphyseotomy according to Zarate's method DEJOL, MICHÉLON, and JAUBERT Rev franç de gynéc. et d'obst., 1935, 30 786 [354]

Cesarean section N F MILLER J Indiana State M Ass, 1935, 28 630

The present position of cesarean section in obstetrical practice J B BANISTER Brit M J, 1935, 2 1143

Abdominal cesarean section at present and in the future. G WYFFER Zentralbl f Gynaek, 1935 p 2402

The prevention of complications during cesarean section H DOLFFLER Med Welt 1935, p 674

The frequency of destructive operations on the fetus and the possibility of decreasing it T HEYNTHAU Zentralbl. f. Gynaek., 1935, p 1922 [354]

The dependability of our tests for the completeness of the placenta H BRLOURANSKY Muenchen med Wchnschr, 1935, 2 1238

Vinyl ether obstetrical anesthesia for general practice W BOURNE Canadian M Ass J, 1935, 33 629

Obstetrical analgesia S T RISS Texas State J M, 1935, 31 501

The effects of obstetrical analgesia with barbituric compounds on contraction of the uterus and on the fetus II VICENES and J CHATAIN Presse méd, Par, 1935, 43 1805

Spinal anesthesia in obstetrical and gynecological surgery in tuberculous patients PASMAN Bol Soc de obst y ginec. de Buenos Aires, 1935, 14 638

Puerperium and Its Complications

Occult bleeding during labor A LOHNB Rozhl Chir a Gynaek C gynaek., 1935, 14 176

Mediastinal and subcutaneous emphysema in the parturient woman A O I TURFVEN Ann inst obst et gynec. univ., Helsinki, 1934, 10 76

Puerperal fever K SOMMER Ztschr f aerztl Fortbild, 1935, 32 337, 373

A study of the treatment of puerperal fever L T SANTOS Med Ibera, 1935, 19 659

Semmelweis and puerperal fever J H DE HAAS Geneesl Tijdschr Nederl-Indië, 1935, 75 1536

Streptococcal infection in childbirth and septic abortion P M CONGDON Lancet, 1935, 229 1287

Puerperal eclampsia. E L KING Texas State J M, 1935, 31 593

The treatment of puerperal and postoperative thrombophlebitis by the method of Fisher Jager R SASSI Gynecologia, 1935, 1 1045

The mortality from childbirth and from puerperal sepsis during the last forty years G BERNDT 1935 Leipzig, Dissertation [355]

Newborn

Bleeding from the nose and in the associated sinuses and orbit due to birth trauma E HAIST 1935 Tuebingen, Dissertation

The treatment of so-called umbilical hernia in the newborn J OBERHOLZER. Zentralbl. f. Gynaek, 1935, p 2062

True melanä neonatorum and duodenal ulcer N I HILJIBROEK Nederl Tijdschr v Geneesk., 1935, p 4443

Natal and neonatal mortality in the Clinic of Parma from 1930 to 1934 E PONZI Clin ostet., 1935, 37 664

Miscellaneous

Radiography in obstetrics. R. BALL. Kentucky M J, 1935, 33 571

- The carotid content of the maternal, fetal, and placental blood. E. GUMBERT. *Gynecologie*, 1935, 1099.
- The content of uric acid in the maternal, fetal, and placental blood. E. FROSTEN. *Chn Obstet* 1935, 37 64.
- Studies on the bilirubin content of the serum in healthy non pregnant, pregnant, parturient, and postpartal patients. S. VAYTUK. *Ann Inst. obst. et gynec. univ. Helsinki*, 1934, 10 1.
- The relationship between birth frequency and previous full term pregnancies, the age of the mother and the number of earlier labors. V. KARELIV. *Ann. Inst. obst. et gynec. univ. Helsinki*, 1934, 10 69.
- The fate of our eclamptic patients in subsequent pregnancies and labors. S. KJELLAV-MORNER. *Norsk Mag. f. Lægevidensk.* 1935 96 77.

- Chondroepithelioma. W. COV. *J Kansas M Soc* 1935 36 705.
- Clinical observations on chondroepithelioma, with particular reference to treatment. S. MACFARLAN. *Canad. polska*, 1935 14 590.
- Biological and roentgenological demonstration of metastases in a case of malignant chondroepithelioma. L. STROCK. *Monatschr. f. Geburtsh. u. Gynæk.* 1935, 100 15.
- Birth frequency in the eighteenth century. V. KARELIV. *Ann. Inst. obst. et gynec. univ. Helsinki*, 1934, 10 36.
- A case of quadruplets. M. C. E. CONSTANTINE. *Brit. M. J.* 1935, 306.
- The lymphatic quadruplets. E. H. HARRISON. *Brit. M. J.* 1935 2 1507.
- In remembrance of Semmelweis. W. K. FRANKEL. *Zentralbl. f. Gynæk.* 1935, p. 309.

GENITO-URINARY SURGERY

Adrenal, Kidney and Ureter

- The adrenal problem. F. A. HARTMAN. *Endocrinology* 1935, 10 613.
- Addison's disease and the corticoadrenal hormone. P. VILAY. *Bull. et mémo. Soc. méd. d. hop. de Par.* 1935, 51 1435.
- A tumor of the adrenal gland composed of the elements of bone-marrow tissue. J. C. RICHARDSON. *Am. J. Cancer* 1935, 5 746.
- Case report of suprarenal cortex tumor under the tumor process of the kidney with premature sex development. A. ADLER-RICH. *Gynäkologische*, 1934, 24 33.
- The technique of adrenalectomy and adrenal destruction. J. L. DE COCKEY. *Am. J. Surg.* 1935, 30 304.
- Radiationography and exploration of pyelo-ureteral function. F. BLOER and J. JOLLES. *J. d'Urol. méd. et chir.* 1935, 40 377. [356]
- The clinical evaluation of the Reberg test in functional studies of the kidney. A. ROCHA, X. CORTADA, and M. TRALLERO. *Rev. méd. de Barcelona*, 1935, 9.
- One thousand cases of intravenous pyelography. T. G. GOTTLEB and S. R. FRANKEL. *Nov. Khir. arkh.* 1935, 34 140.
- The parenchymal lymphatics of the kidney. G. JAKIN-SKI. *J. d'Urol. méd. et chir.* 1935, 40 304.
- The finer anatomy of the vessels of the normal kidney and changes in these vessels in certain renal and extra-renal diseases. H. HERTZOK. 1934. Toulon, Dissertation.
- Compensatory renal hypertrophy. R. B. ALLER. *J. Urol.* 1935, 34 553.
- Secondary nephrectomy for injury of horseshoe kidney. V. T. VORONTOV. *Soviet. Khir.*, 1935, 5 149.
- Conservative surgical treatment of postoperative renal hemorrhage. A. SLAVIANO. *Arch. ital. di chir.* 1935, 40 336. [356]
- Hematuria due to varicosities in renal calyces. J. L. CHRISTMAN. *Brit. J. Urol.* 1935, 7 345.
- Urinary proteins. The appearance of kidney protein in the urine of some cases of severe chronic glomerular nephritis. G. GELMAN. *J. Urol.* 1935, 34 737.
- Amorphous degeneration of the kidney and tuberculosis. F. M. ROZALIN. *Med. Zhurn.*, 1935, 10 467.
- Urinal conditions simulating penilephic abscess, with a report of two cases. C. F. ROBERTS and S. K. BACON. *J. Urol.* 1935, 34 504.
- The abuse of pyelography in case of renal lithiasis. H. D. BERT. *Semaine Méd.* 1935, 4 1472.

- Urinary calculi in Paget's disease. A. E. GONZALEZ and B. S. ANTONIO. *Am. J. Surg.* 1935, 30 190. [254]
- A new surgical procedure for the treatment of polycystic kidneys. A. E. GONZALEZ. *J. Urol.* 1935, 34 136. [357]
- Renal tumor. R. C. JEWELL. *Proc. Roy. Soc. Med. Lond.* 1935, 28 37.
- Perineal and perineal fibroepithelioma, their relation to replacement liposarcoma of the kidney. J. LUTHELI. *Berg. Gynec. et Obst.* 1935, 4 704.
- The management of renal tumors, including cysts. R. M. LECOMTE. *J. Am. M. Ass.* 1935, 105 663.
- Anomalous relationship of the right ureter to the cava. A. RANDALL and E. W. CAMERON. *J. Urol.* 1935, 34 365.
- Palatal complete unilateral and pelvic reduplication with ectopic supernumerary ureteral orifices on one side without communication and with communication between the two right ureters. E. H. FREE. *Brit. M. J.* 1935, 4 1008.
- The problem of non-calculous ureteropelvic obstruction. A. HARRIS. *Ann. Surg.* 1935, 102 1650.
- The cause and treatment of non-calculous ureteropelvic obstructions, with report of sixty six operated cases. R. B. HARRIS. *J. Urol.* 1935, 34 584. [357]
- The local healing of ureteral fistulae, and therapeutic aids thereto. W. STROCK. *Zentralbl. f. Gynæk.* 1935, 10 3547.
- Transplantation of the ureters into the bladder by the Coffey III method. P. D. SOLOVYOV. *Soviet. Khir.* 1935, 4 30.
- A simple seven section method of bilateral uretero-intestinal implantation, report of twelve cases. F. HIRAKI. *Berg. Gynec. et Obst.* 1935, 4 803.
- ### Bladder, Urethra, and Penis
- Bladder abnormalities due to injury of the motor pathways in the nervous system. L. O. LEWIS, O. R. LAWSON, and J. E. DEER. *J. Am. M. Ass.* 1935, 101 30. [357]
- The significance of vesical diverticula. R. H. O. B. ROBERTSON. *Brit. J. Urol.* 1935, 7 33. [356]
- A proposal for the operative treatment of bladder diverticula and rectovesical fistula in the male. F. ROBERTSON. *Zentralbl. f. Chir.* 1935, p. 2156.
- Ingusial hernia of the bladder. A. BARNARD and A. S. UGGER. *Am. J. Surg.* 1935, 30 300.
- The treatment of ectropion of the bladder. NAWROT. *Bull. et mémo. Soc. méd. de chir.* 1935, 4 145.

BIBLIOGRAPHY OF CURRENT LITERATURE

409

The genesis and development of Brunn's nests and their relation to cystitis cystica, cystitis glandularis, and primary adenocarcinoma of the bladder F S PATCH and L J RHEA Canadian M Ass J, 1935, 33 597

The management of vesical calculi A RAVICH. Ann Surg, 1935, 102 1092

Bladder tumor C J COONEY J Indiana State M Ass, 1935, 28 658

Cystoscopic treatment of papillary bladder tumors J B HICKS Surg Clin North Am, 1935, 15 1663

Infiltrating carcinoma of the bladder A HYMAN Ann Surg, 1935, 102 1090

Bilharzic cancer of the bladder Report on eleven per sonal cases, including two of cancer of an uninfected bilharzic bladder A DIAMANTIS J d'urol méd et chir, 1935, 40 408

Atypical carcinoma of the urinary bladder simulating myosarcoma A report of two cases and a review of the literature S M RABSON J Urol, 1935, 34 638 [358]

The rôle of the urethra in female urology W E STEVENS California & West. Med, 1935, 43 411

Injuries to the posterior urethra H W MARTIN J Urol, 1935, 34 718

Traumatic rupture of the urethra W R DELZELL and A R STEVENS J Urol, 1935, 34 372

Structure of the male urethra J L WHITEHILL Pennsylv. M J, 1935, 39 170

Experiences with the new method of catheter fixation A BARTHA Orvosi hetil, 1935, p 877

Total urethrostomy in the female, a new technique H B FREIBERG J Urol, 1935, 34 615

Congenital elephantiasis of the penis and scrotum H ZSCHAU Deutsche Ztschr f Chir, 1935, 245 312

Perineal hypospadias Report of a case C BEGG New Zealand M J, 1935, 34 378

Genital Organs

Further studies in the endocrinological relationships of prostatic hypertrophy The effect of castration on the suburethral glands in the posterior urethra of the rat C LER, DEMING, R. H. JENKINS, and G VAN WAGENEN J Urol, 1935, 34 678

The relation of the interstitial cells of the testis to prostatic hypertrophy M VAN B TEEM J Urol, 1935, 34 692

A summary of an experimental research on the control of benign prostatic hypertrophy, and a preliminary clinical report W E LOWER, W J ENGEL, and D R McCULLAGH J Urol, 1935, 34 670

Benign hypertrophic prostate C C FALK, JR California & West. Med, 1935, 43 435

The present therapeutic possibilities in prostatic hypertrophy W FORSMANN Med Welt, 1935, p 1034

What is the value of resection of the vas in the presentation of epididymitis in prostatic hypertrophy? R HOEFFNER. 1935 Leipzig, Dissertation

Transurethral resection of the prostate R HOWARD Helv. med Acta, 1935, 2 151

The treatment of prostatic hypertrophy and stenosis of the neck of the bladder by endo urethral resection E KRAAS Ergebn d Chir, 1935, 28 289

Intra-urethral prostatectomy B R WESTON J Iowa State M Soc., 1935, 25 658

Transurethral resection of the malignant prostate, with a review of fifteen cases A JACOBS Brit. J Urol, 1935, 7 321

Sarcoma of the prostate in infants A case report and a brief review of the literature E H RAY J Urol, 1935, 34 686

Carcinoma of the vas deferens Report of a case G J THOMPSON and F PILCHER, JR J Urol, 1935, 34 714

Acute epididymitis J P ROBERTSON and A B LEE Am J Surg, 1935, 30 462

Maldevelopment and maldescent of the testes II Further observations on treatment with the anterior pituitary-like gonadotropic hormone G B DORFF Am J Dis Child, 1935, 50 1429

A case of undescended testes successfully treated with "Antutrin S" C SIPPE Med J Australia, 1935, 2 787

Gonadotropic hormones in the treatment of imperfectly migrated testes A W SPENCE and E F SCOWEN Lancet, 1935, 229 1335

Subacute orchitis of infancy, torsion of the hernial sac within the tunica vaginalis M SALMON Bull et mém Soc. nat de chir, 1935, 61 1199

Massive tuberculosis of the testis P MOULONGUET Bull et mém Soc. nat de chir, 1935, 61 1191

Teratoid tumors of the testis A L DEAN, Jr J Am M Ass, 1935, 105 1965

Orchidectomy on the high seas P E F FROSSARD Lancet, 1935, 229 1409

Miscellaneous

Multiple urograms, their advantage in urological diagnosis J S LEWIS Am. J Surg, 1935, 30 469

Principles of excretory urography in diagnosis N J HECKEL Illinois M J, 1935, 68 542

Newer questions in urological surgery E KRAAS Chirurg, 1935, 7 585

A clinical study of micturition E G ROBERTSON Med J Australia, 1935, 2 890

The lymphatics of the lower urinary and genital tracts An experimental study, with special reference to renal infections D W MACKENZIE and A. B WALLACE J Urol, 1935, 34 516

The treatment of essential incontinence in infants, infiltration of the perineum with sodium chloride A TÖRÖK. J d'urol. méd. et chir, 1935, 40 433

Experimental study of urinary infiltration. P BEZZA Arch ital di chir, 1935, 41 1

Bacteriological analysis of urinary sugars K O STRENG Acta Soc med Fennicae Duodecim, 1935, 18 Fasc 1

Uremic ulcerative colitis following cystoscopy A L D'ABREU and A C LYSAGHT Brit J Urol, 1935, 7 336

Tuberculous bacilluria and its anatomicopathological basis R CRUGNOLA and A SOSTEGNI Arch. ital di chir, 1935, 41 205

Urogenital tuberculosis of more than thirty years' duration F LICHTENAUER Ztschr f Urol, 1935, 29 579

The treatment of acute gonorrhea E CASTAÑO Semana méd, 1935, 42 1292

Gonorrhea in the male, observations on treatment, with special reference to the Corbus-Ferry filtrate H M SPENCE J Oklahoma State M Ass, 1935, 28 442

The treatment of gonorrhea in the female M SCHUBERT and E VON JACHMANN Dermat Wchnschr, 1935, 2 1079

What is the best treatment for acute gonorrhea? E TANT Bruxelles-méd, 1935 16 118

Gonorrheal septicemia and erythema nodosum E BAKST, J A FOLEY, and M E LAMB Ann Int. Med., 1935, 9 790

Gonococcemia with complete recovery Case report. S H KRITZALIS New York State J M, 1935, 35 1208

The treatment of bilharzia infection by the urologist. F G CAWSTON Brit. J Urol, 1935, 7 333

Urinary antiseptics J T TAIT Brit. M J, 1935, 2 1252

The carotid content of the maternal fetal, and placental blood. E. GILBERT. *Gynecologia*, 1935, 11:1099

The content of uric acid in the maternal, fetal, and placental blood. E. FROSTICALL. *Chir. obstet.* 1935, 37:64

Studies on the haptoglobin content of the serum in healthy non-pregnant, pregnant, parturient, and puerperal patients. S. VÄYRYNEN. *Ann. Inst. Obst. et Gynec.* and *Helsingfors*, 1934, 10:

The relationship between birth frequency and pre-eclampsia full-term pregnancies: the age of the mother and the number of earlier labors. V. KARLÉN. *Ann. Inst. Obst. et Gynec.* and *Helsingfors*, 1934, 69

The fate of our celiacus patients in subsequent pregnancies and labors. S. KJELLAND-MØRNER. *Norsk Mag. f. Lægevidensk.* 1935 66:714

Chorionepithelioma. W. COX. *J. Kansas M. Soc.*, 1935, 36:503

Clinical observations on chorionepithelioma, with particular reference to treatment. S. MACDONELL. *Canad. J. Pathol.*, 1935, 14:599

Biological and roentgenological demonstration of metastases in case of malignant chorionepithelioma. L. STORCK. *Monatsschr. f. Geburtsh. Gynæk.* 1935, 100:13

Birth frequency in the eighteenth century. V. KARLÉN. *Ann. Inst. Obst. et Gynec.* and *Helsingfors*, 1934, 10:610

A case of quadruplets. M. C. L. COVATTE. *Brit. M. J.* 1935, 1:1806

The trichotrich quadruplets. E. H. HARRISON. *Brit. M. J.* 1935, 1:1807

I remembrance of Semmelweis. W. K. FRANKEL. *Zentralbl. f. Gynæk.* 1935 p.1909

GENITO-URINARY SURGERY

Adrenal, Kidney and Ureter

The adrenal problem. F. A. HARTMAN. *Endocrinology* 1935, 9:813

Addison's disease and the corticoadrenaline hormone. P. VÉRAY. *Bull. et Ann. Soc. méd. d. hop. de Par.* 1935, 5:1435

A tumor of the adrenal gland composed of the elements of bone marrow tissue. J. C. RICHARDSON. *Am. J. Cancer* 1935, 5:746

Case report of a suprarenal cortex tumor under the tissue propria of the kidney with premature sex development. A. ADLER-RICE. *Ovostephia*, 1934, 4:83

The technique of adrenalectomy and adrenal denervation. J. L. DE CORTY. *Am. J. Surg.* 1935, 30:443

Elimination urography and exploration of pyelo-ureteral function. F. BLOCH and J. JELINEK. *J. urol. med. et chir.* 1935, 40:377 [1934]

The clinical evaluation of the Reberg test in functional studies of the kidney. A. ROCHA, A. COSTA, and M. TRALLERO. *Rev. méd. de Barcelona*, 1935, 1:101

One thousand cases of intravenous pyelography. T. G. GOTTES and S. R. FRANKEL. *Nov. Khar. Arkh.* 1935, 34:140

The parenchymal lymphatics of the kidney. G. JAKUBSKI. *J. urol. med. et chir.* 1935, 40:301

The finer anatomy of the vessels of the normal kidney and changes in these vessels in certain renal and extra-renal diseases. H. HARTROCK. 1934. Tübingen, Dissertation.

Compensatory renal hypertrophy. R. B. ALLEY. *J. Urol.* 1935, 34:113

Secondary nephrectomy for injury of a horse's kidney. V. T. VOLOSHINOV. *Soviet Khir.* 1935, 5:40

Conservative surgical treatment of postoperative renal hemorrhage. A. SALVENDY. *Arch. Ital. di chir.* 1935, 40:777 [1934]

Hematuria due to varicocele in renal colic. J. L. CHRISTIAN. *Brit. J. Urol.* 1935, 7:345

Urinary proteins. The appearance of kidney proteins in the urine of some cases of severe chronic glomerular nephritis. G. GILMAN. *J. Urol.* 1935, 34:737

Amorphous degeneration of the kidney and tuberculosis. F. M. ROKALSKI. *Med. Ibera*, 1935, 9:667

Unusual conditions stimulating pyelonephric abscess, with report of two cases. C. F. REISCH and S. K. BACON. *J. Urol.* 1935, 34:504

The value of pyelography in case of renal lithiasis. H. D. BRER. *Semin. med.* 1935, 42:1472

Urinary calculi in Paget's disease. A. E. GOLDSTEIN and R. S. VERNON. *Am. J. Surg.* 1935, 30:159 [1934]

A new surgical procedure for the treatment of polycystic kidneys. A. E. GOLDSTEIN. *J. Urol.* 1935, 34:166 [1937]

Renal tumor. R. C. JENNINGS. *Proc. Roy. Soc. Med. Lond.* 1935, 29:37

Perineal and peripelvic fibroepithelioma, their relation to replacement lipomatosis of the kidney. F. LITHEUS. *U. Berg. Gynec. & Obst.* 1935, 6:794

The management of renal tumors, including cysts. R. M. LACONTE. *J. Am. M. Ass.* 1935, 95:963

Anomalous relationship of the right ureter to the renal cava. A. RANDALL and E. W. CAMPBELL. *J. Urol.* 1935, 34:505

Bilateral complete ureteral and pelvic reduplication with ectopic supplementary ureteral orifices on one side without ascostasis and with communication between the two right ureters. E. H. FITZ. *South. M. J.* 1935, 28:508

The problems of non-calculous ureteropelvic obstruction. A. HARRIS. *Ann. Surg.* 1935, 161:590

The cause and treatment of non-calculous ureteropelvic obstructions, with a report of sixty six operated cases. R. B. HENSLER. *J. Urol.* 1935, 34:684 [1937]

The local healing of a ureteral fistula, and therapeutic aids thereto. W. STORCK. *Zentralbl. f. Gynæk.* 1935, 1015

Transplantation of the ureters into the bowel by the Coffey III method. P. D. BOLOVOR. *Soviet Khir.* 1935, 4:139

A simple seven-stature method of bilateral uretero-ureteral implantation, report of twelve cases. F. HODGINS. *Surg. Gynec. & Obst.*, 1935, 6:303

Bladder, Urethra, and Penis

Bladder abnormalities due to injury of the motor pathways in the nervous system. L. G. LEVIN, O. R. LASHOVSKY and J. E. DIER. *J. Am. M. Ass.*, 1935, 101:30 [1937]

The significance of vesical diverticula. R. H. O. B. ROBINSON. *Brit. J. Urol.* 1935, 7:33 [1936]

A proposal for the operative treatment of bladder diverticula and rectovesical fistula in the male. F. ROBERTS. *Zentralbl. f. Chir.* 1935, p.2358

Inguinal hernia of the bladder. A. ROBINSON and A. S. UGOW. *Am. J. Surg.* 1935, 30:606

The treatment of ectropion of the bladder. NAMIK. *Bull. et Ann. Soc. méd. de chir.* 1935, 6:145

- Osgood Schlatter's disease R D LAIRDCHILD J Michigan State M Soc., 1935, 34 774
 Criticism of the ordinary shoe, the heel D D ASHLEY Med Rec., New York, 1935, 142 560
 Osteochondritis of the head of the third metatarsal bone M H HOBART and H R REICHMAN Am J Surg, 1935, 30 555

Surgery of the Bones, Joints, Muscles, Tendons, Etc

- The nature and result of early treatment of congenital deformities. KRFLZ. Zentralbl f Chir, 1935, p 2007
 Emergency diaphysectomy in acute osteomyelitis M PITTE. Bol y trab Soc. de ciruj de Buenos Aires, 1935, 14 1043
 The clinical study of bone grafts A INCLÁ. Cirug ortop y traumatol, 1935, 3 161
 The use of heterogeneous spongy bone in bone surgery J CALVI. Bull et mém Soc nat de chir, 1935, 61 1170
 Arthroplasty R. MASSART Bull et mém Soc d chirurgiens de Par, 1935, 27 482
 The technique of arthrectomy A CATERINA, JF Zentralbl f Chir, 1935, p 2254
 A new operative procedure for brachial birth palsy Erb's paralysis. B H MOORE Surg, Gynec & Obst., 1935, 61 832
 Fifty cases of divided tendon of the hand S P ROGERS and M F ROBLEDOR Cirug ortop y traumatol, 1935, 3 177
 Transplantation of the index finger as replacement for the thumb, with retention of the fold between it and the middle finger and restitution of the thenar eminence by a skin flap from the abdomen immediately after a fresh injury W PORZELT Zentralbl f Chir, 1935, p 2248
 The management of structural scoliosis S KILBILG Med Rec., New York, 1935, 142 499, 536
 Low back pain, its etiology, diagnosis and treatment A G KIMBERLY West. J Surg, Obst & Gynec, 1935, 43 600
 Iliosacral disarticulation of the hip F LEXER Zentralbl f Chir, 1935, p 2322
 Chronic arthritis of the hip, arthroplastic resection result at the end of four years M d'ALBIGNY Bull et mém Soc. nat. de chir, 1935, 61 1242
 Plastic operations on the hip HJERNFELT Svenska Läkartidningen, 1935, p 1105
 Flexion contracture of the knee joints a simple and effective method of treatment. G L HUGGART Surg Clin North Am, 1935, 15 1527
 Arthroscopy of the knee by the internal posterolateral route L. SANTAFELI Rev méd d Rosario, 1935, 25 1051
 The results of operatively treated non specific diseases of the knee. HETZAR. Zentralbl f Chir, 1935, p 2103
 My method of covering the amputation stump of the leg attributed to Passaggi and described by Macagni L CALANDRA. Arch ital di chir, 1935, 41 360
 The treatment of congenital club foot B VIENNA Cirug ortop y traumatol, 1935, 3 141

Fractures and Dislocations

- On the treatment of compound fractures E. MANHIMER Nord med Tidsskr, 1935, p 1297 [370]
 The treatment of compound fractures, with special reference to the Orr method D B PEIFFER and C M SMYTH, JR Ann Surg, 1935, 102 1059
 Observations on the operative treatment of fresh fractures. I BONI. Arch f lin Chir, 1935, 183 331 [370]
 Retarded consolidation following open reduction with metal G MENEGAN Bull et mém Soc. nat. de chir, 1935, 61 1117
 The sterility of plaster of Paris V KARFIK. Rozhl Chir a Gynack. C chir, 1935, 14 133
 A new method of reducing dislocations at the shoulder A A ZIEROLD Surg, Gynec. & Obst., 1935, 61 818
 Fractures about the shoulder and hip J H. MOE. J-Lancet, 1935, 55 705
 A simple bandage for the treatment of fractures of the clavicle B MATUSEK Orvosképzés, 1935, 25 48
 A splint for broken clavicles which preserves function A K HENRY Brit M J, 1935, 2 1255
 Fracture dislocation of the head of the humerus. R. MEYER-WILDELSCH. Schweiz. med Wchnschr, 1935, 2 722
 Fracture of the lower end of the humerus with complete paralysis of the medial, cubital and radial nerves and complete obliteration of the brachial artery NANDROT Bull et mém Soc. nat. de chir, 1935, 61 1144
 A case of comminuted supracondylar and intercondylar fracture of the humerus treated by a modification of the Zeno method A I LAMISAR and C A L IPARRAGUIRRE Bol y trab Soc. de ciruj de Buenos Aires, 1935, 14 1057
 The orthopedic treatment of supracondylar fractures of the humerus. A CASO DO AMARAL Bol Secretaria Geral de Saude e Assist., 1935, 1 61
 Proximal osteoma following dislocation of the elbow F PASQUALI Chir d organi di movimento, 1935, 21 257
 Nerve complications following supracondylar fracture of the elbow in children I DIET Chir d organi di movimento, 1935, 21 274
 A new splint for the treatment of fractures and injuries at the elbow joint N H RACHLIN Am J Surg, 1935, 30 560
 The value of open reduction of both bone fractures of the forearm J VILLIÈRE Bull et mém Soc. nat. de chir, 1935, 61 1202
 Fractures of the base of the radius in adults N W CORNFELL Arch Surg, 1935, 31 807 [371]
 The operative treatment of recurrent semilunar cartilage dislocation KAPPEL Verhandl daen chir Ges, 1935, p 14 [372]
 A useful diagnostic sign in vertebral injuries R. SOTO-HALL and K O HALDEMAN Surg, Gynec. & Obst., 1935, 61 827
 Compression fractures of the spine. W A MORRISON and R J FLAMSON California & West Med, 1935, 43 416
 Internal fixation in fractures of the hip (Martin method) W R BREWSTER Am J Surg, 1935, 30 420
 A survey of the management of intracapsular fracture of the neck of the femur F D DICKSON J Missouri State M Ass, 1935, 31 481
 Personal technique and new instrumentarium for open reduction of fracture of the neck of the femur J VALLS and E IL LAGOMARSINO Bull. et mém Soc. nat. de chir, 1935, 61 1203
 Surgical treatment of certain types of fractures in the trochanteric region J PATFL. Presse méd, Par, 1935, No 92, 1855
 The treatment of ununited fractures of the neck of the femur by the bifurcation operation W I GALLAND Am J Surg, 1935, 30 410.

Urinary calculi in bone diseases. A review of the literature and a report of cases. A. E. GOLDBERG and B. S. ARONOWITZ. *Arch Surg* 1935, 3: 1043. [359]
The medical management of urinary lithiasis. C. C. HIGGINS. *Surg Clin North Am* 1935, 3: 973. [360]

Veneral lymphogranulomatosis. M. I. QUIROGA and P. BOGO. *Seminars méd.* 1935, 43: 1808. [361]
The characteristics of venereal granuloma in Uruguay. M. HALTY. *An. Fac. de med. de Montevideo*, 1935, 36: 29. [362]

SURGERY OF THE BONES JOINTS MUSCLES TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

The action of different metals on bone tissue. An experimental study on animals. G. MICHOTTEUX and D. ODETTE. *J de chir* 1935, 46: 693. [363]

The pathology of osseous tissue. A. M. DEKAMAN. *Brit M J* 1935, 341. [364]

The nature of osteogenic imperfecta. I. D. PUPERT, L. E. BARNES, and G. M. CURTIS. *Am J M Sc* 1935, 190: 756. [365]

Serum phosphatase in osteogenic imperfecta. O. N. SMITH and J. McK. MITCHELL. *Am J M Sc* 1935, 190: 765. [366]

Hereditary osteopetrosis. H. FROE. *Deutsche Ztschr f Chir* 1935, 241: 279. [367]

Marble bones. Albert Schoenberg disease. G. C. PARKER. *Chir d organ du mouvement*, 1935, 311: 800. [368]

Osteomyelitis in infancy. W. T. GREEN. *J Am M Ass* 1935, 95: 835. [369]

Acute parosteal osteomyelitis in the Third Surgical Clinic of the University of Budapest. L. KEREKES. *Orvosi Lapok*, 1935, 35: 95. [370]

The surgical and non-surgical treatment of acute and chronic osteomyelitis. I. PHILLIPOWITZ. *Ergänz. d Chir* 1935, 26: 364. [371]

Multiple types of familial cystitis of bone. H. MATYK. *Bull. et mémoires Soc d chirurgiens de Paris* 1935, 27: 478. [372]

Bone abscess. M. SERRAVALLO. *Orvosi Lapok*, 1935, 35: 67. [373]

Lymphogranulomatosis of the bones. H. REYER. 934. *Kiel Dissertation*. [374]

Osteoid-osteoma. benign osteoblastic tumor composed of osteoid and atypical bone. H. L. JAFFE. *Arch Surg* 1935, 31: 700. [375]

Pneumatothorax. A. DOYOVICH and M. SERRAVALLO. *Bol y trab Soc de chir de Buenos Aires*, 1935, 9: 666. [376]

The difficulties of diagnosis of fibrocystic osteitis. SCHWARTZ and HUARD. *Bull. et mémoires Soc nat de chir* 1935, 61: 24. [377]

Osteitis fibrosa deformans of Paget and sarcoma. P. BALLET, J. DELAUX, and A. ELGIN. *Presse méd. Paris* 1935, No 93: 843. [378]

An attempt to produce Paget's disease by the use of anterior pituitary growth extract and parathyroid extract. R. C. MICHOTTEUX, J. M. ALPERT, and L. RETZIG. *Am J Roentgenol* 1935, 34: 465. [379]

An analysis of living patients with primary malignant bone tumors. W. C. CAMPBELL. *J Am M Ass* 1935, 103: 1490. [380]

Bone metastases of malignant tumors. H. HELLER. *Ergänz. d Chir* 1935, 26: 73. [381]

Observations on the administration of large doses of calcium in metastatic carcinoma in bone. A. RAUSCHER. *Abh. J Cancer* 1935, 35: 721. [382]

Osteochondritis dissecans. RAYCH. *Zentralbl f Chir* 1935, p. 106. [383]

Osteo-arthritides and its components. R. G. GOSWAMY. *Brit M J* 1935, 346: 3. [384]

Chronic arthritis; treatment by intravenous vaccine. G. MILLER. *South. M. J* 1935, 48: 710. [385]

The prognosis in chronic arthritis. E. K. SUTHERWOOD. *Northwest Med* 1935, 34: 459. [386]

The treatment of non-specific arthritis with intramuscular injections of sulphur. D. KENNEDY. *Med M J* 1935, 2: 144. [387]

Chrysotherapy in chronic polyarthritides. A. MONTA. *Acta med Scand* 1935, 86: 459. [388]

The results of parathyroidectomy in the treatment of ankylosing polyarthritides. P. S. FARRAR. *Lyon chir* 1935, 3: 664. [389]

Pseudohypertrophic muscular dystrophy. G. C. PI. *Chancie M. J.* 1935, 49: 1246. [390]

Two cases of hemiparesis of the voluntary muscle, with a brief review of the literature. E. N. MACDONALD. *Brit J Surg* 1935, 23: 252. [391]

A contribution on inflammatory tumors presenting the picture of malignant tumors, with consideration of so-called giant-cell sarcoma of the tendon sheaths. G. BRUN. *SAUN* 1935, Halle-Wittenberg, Dissertation. [392]

Tumors of connective tissue. C. F. OSTROMER and D. LEWIS. *Am J Cancer*, 1935, 27: 630. [393]

Lactarum osseum: a clinical and roentgenological study report of case. J. H. GAZDAR. *Radiology* 1935, 25: 723. [394]

Lesions of the shoulder girdle. W. L. BILL. *Ann Surg* 1935, 101: 63. [395]

Bilateral accessory scapula. L. DIVERTI. *Radiol. med.* 1935, 3: 1010. [396]

Subcutaneous partial rupture of the quadriceps following contusion during contraction of the muscle. C. I. ALLROST. *Bol y trab Soc de chir de Buenos Aires*, 1935, 4: 1073. [397]

Vollmann's disease, myogenic contraction of the flexor muscles of the fingers. Pathogenesis and treatment. R. MAMBAT. *Presse méd. Paris* 1935, 43: 1693. [398]

A comparative radiological and anatomical study of the vertebral column. R. I. GRADMAN and C. J. SCHNE. *Am J Surg* 1935, 30: 55. [399]

Osteoporosis of the vertebrae. P. MEXLEY and A. JACOB. *Bull. et mémoires Soc méd d hôp. de Paris* 1935, 51: 1450. [400]

Acute and chronic osteomyelitis of the vertebral column. T. N. RYSSCHENKO. *Soviet Med* 1935, 5: 95. [401]

Apophysis of the anterior spine of the spine. J. DONAT. *Bull. et mémoires Soc nat de chir* 1935, 61: 13. [402]

The area of ossification in the neck of the femur. O. SCARLETTI. *Chir d organ du mouvement*, 1935, 31: 273. [403]

The roentgenological visualization of the heterocystified foam and its value in the diagnosis of knee joint disease. R. KAMMER. *Berlin Klin Chir* 1935, 6: 158. [404]

A radiographic study of the knee with curved film for the study of foreign bodies in the joints. H. BIRCHER. *Presse méd. Paris* 1935, No 93, 839. [405]

The football knee. J. W. WHITE. *J Lancet*, 1935, 53: 773. [406]

Bilateral absence of the tibia and fibula. E. SCHWARTZ and P. DIVERTI. *Bull. et mémoires Soc nat de chir* 1935, 6: 226. [407]

Tuberculous lymphadenitis secondary to inconspicuous healed traumatic cutaneous tuberculous lesions. B N CARTER and J SMITH J Am. M. Ass., 1935, 105 1839
Lymphogranulomatosis in childhood G SCHIAVONE. Rev. méd. Rosario, 1935, 25 1005

Malignant lymphogranulomatosis, Hodgkin's disease. A S PASTOUS Arch. brasil. de med., 1935, 25 181
The treatment of secondary carcinomatous lymph nodes by the Parisian methods A FEHR Chirurg, 1935, 7 [376] 545

SURGICAL TECHNIQUE

Operative Surgery and Technique, Postoperative Treatment

Pre-operative and postoperative treatment V R KHESIN Nov. Khir. arkh., 1935, 34 123
The treatment of syndactylism H J LAUBER Chirurg, 1935, 7 598
The free transplantation of skin, an evaluation of methods. E B POTTER. Surg., Gynec. & Obst., 1935, 61 713
Plastic repair of a pes calcaneovalgus due to cicatricial bands from burns. I PASCAU Cirug. ortop. y traumatol., 1935, 3 185
Surgical scarlet fever G MENEGAUX. Bull. et mém. Soc. nat. de chir., 1935, 61 1196
The rôle of urochromogen in surgical diseases A P PAVLOVA Nov. Khir. arkh., 1935, 34 125
Continuous intravenous infusion T G ORR Minn. Med., 1935, 18 778
Surgical and anesthetic risk in cardiac disease J HICKMAN, H LIVINGSTONE, and M E DAVIES Arch. Surg., 1935, 31 917 [378]
The total leukocyte and filament-nofilament neutrophile count following surgical operations without complications. C MERMOD West. J. Surg., Obst. & Gynec., 1935, 43 691
Postoperative variations in creatinin S GABRIELLI Arch. ital. di chir., 1935, 41 148
Some postoperative changes and their prognostic significance. E W GOETZEN Nord. med. Tidsskr., 1935, p 1169 [378]
Pulmonary complications following operations and their treatment. A GUSZICH Orvosi hetil., 1935, p 1023
Massive collapse (atelectasis) R J MAIER. Illinois M. J., 1935, 68 498
Pulmonary atelectasis J A. ASENSIO Clin. y lab., 1935, 20 137
The causes and prevention of postoperative thrombosis and embolism. Experiences with 6,800 patients who were operated upon W KOENIG Deutsche med. Wchnschr., 1935, 2 1229.
May patients who have had one thrombosis safely undergo another operation, or labor, without danger of a new thrombosis? M MÁTYÁS Zentralbl. f. Gynaek., 1935 p 2066
Pulmonary embolism in retrospect, with a report of six cases T S CLAIBORNE Surg. Clin. North Am., 1935, 15 1635

Antiseptic Surgery, Treatment of Wounds and Infections

Some pages out of my war daybook A VON EISELSBERG Orvosi hetil., 1935, p 1041
Injuries from electricity and lightning M CRITCHLEY Brit. M. J., 1935, 2 1217
The treatment of fresh wounds by the method of Lear T G SAVCHENKO Nov. Khir. arkh., 1935, 34 174
Further experimental studies on the relationship of the vitamins to wound healing H J LAUBER. Beitr. z. klin. Chir., 1935, 161 565

The action of lytic products on the healing of wounds. A T SOZON-TAROSHEVITCH Nov. Khir. arkh., 1935, 34 3
The novocain pack. A contribution to the theory of fresh accidental wounds. M FRITZ and E K TANNER New York State J. M., 1935, 35 1217
The treatment of wounds by the method of Loeher E V SMIRNOV Sovet. Khir., 1935, 4 35
The use of oil in wounds H MENNENGA Med. Welt, 1935, p 1324
The question of the excision of wounds M ZUR VERTH Chirurg, 1935, 7 473 [379]
The treatment of burns S J SEEGER. Texas State J. M., 1935, 31 488 [379]
The tannic-acid and silver-nitrate treatment of burns COTTER and KIMBELL. New Zealand M. J., 1935, 34 384
Anatomical changes in minor skin injuries following the use of antiseptics. An experimental study V T ROGANSKY Sovet. Khir., 1935, 5 38
Tenosynovitis of the radial and ulnar bursa of the right hand. Palmar and forearm incision with division of the transverse carpal ligament, excellent functional result. H WELTI Bull. et mém. Soc. nat. de chir., 1935, 61 1142
The treatment of acute infectious processes of the hand M SZAPPANOS Orvoshépzés, 1935, 25 71
The biological treatment of local pyogenic infections W LOEHR Schweiz. med. Wchnschr., 1935, 2 927
Researches on tetanus IV. Some historical notes on tetanus and commentaries thereon J J ABEL and B HAMPIL Bull. Johns Hopkins Hosp. Balt., 1935, 57 343 [381]
Increase of polypeptides in the blood in tetanus H WAREMBOURG and J DRIESSENS Presse méd., Par., 1935, 43 1601 [381]
The problem of tetanus prophylaxis. F S KORGANOVA-MULLER Sovet. Khir., 1935, 5 30
The treatment of tetanus G LEGL. Med. Welt, 1935, 2 1398
Recurrent tetanus G TULANU Rev. de chir., Bucharest, 1935, 38 66
The treatment of furuncles of the lip C HADENFELDT 1934 Kiel, Dissertation [381]
The use of bacteriophage in the treatment of furunculosis L E LEVIT Sovet. Khir., 1935, 5 47
Maggots in the treatment of carbuncles. A FINE and H ALEXANDER. J. Med., Cincinnati, 1935, 16 534.
A critical and experimental study of the toxin and antitoxin of staphylococci J M GÓMEZ, J de CISNEROS, and L G URGOTTI Arch. de med., cirug. y especial, 1935, 16 727
Staphylococcal infections of the skin and their treatment. J I CONNOR Brit. M. J., 1935, 2 1195
Immunotransfusion and antitoxin therapy in hemolytic streptococcus infections C LYONS J Am. M. Ass., 1935, 105 1972 [382]
Diphtheria infection of wounds E LEXER. Zentralbl. f. Chir., 1935, p 2322
Tularemia. A report of three fatal cases with autopsies. A BERNSTEIN Arch. Int. Med., 1935, 56 1117
Human anthrax in Barotseland treated with novarsenobenzenes F W GILBERT Lancet, 1935, 229 1283

The treatment of old fractures of the neck of the femur and of pseudarthrosis of the neck of the femur L. BOER
Zentralbl. f. Chir. 1935, p. 1756

Results of treatment of medical collar femoral fractures, with special reference to osteosynthesis and road Sven Johansson K. LARSSON Acta chirurg. Scand. 1935, 77: 271

The operative treatment of habitual and permanent dislocation of the patella, particularly by the methods of Krugov and Goldkorn O. KAVEL Acta chirurg. Scand. 1935, 77: 201

Severe pseudarthrosis of the leg E. LEYER Zentralbl. f. Chir. 1935, p. 2335

Observations and experiences in the treatment of fractures of the leg in children J. POUET Helvet. med. Acta, 1935, 645

Healing of the newer bumper fractures of the tibia W. G. STEIN and L. E. PAPUNT J. Am. M. Ass. 915, 95 2127

Fracture of the external condyle of the tibia. Open reduction maintained by a bone graft. Result after ten

months. C. LICHENANT Bull. et mém. Soc. nat. de chir. 1935, 61 190

Reversed Colles fracture: successful reduction by the closed method J. G. RAYNER J. Am. M. Ass. 1935, 105 2 99

Reversed Colles fracture; a plea for closed reduction R. B. BEITHMAN and W. J. TANNENBAUM J. Am. M. Ass. 1935, 105 215

The prevention of late deformity in Colles fracture D. A. MURRAY Northwest Med. 1935, 34 467

Uncomplicated inferior marginal fractures of the tibia. The uncomplicated anterolateral marginal fracture E. LICHT Ann. ital. di chir. 1935, 14 237

Subtalar dislocation of the foot D. C. STRAUSS Am. J. Surg. 1935, 50 437

Orthopedics in General

Orthopedics one hundred years ago. The orthopedic practice as a forerunner of the present house for cripples B. VALERIN 1935 Stuttgart, Eala.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

The treatment of varicose ulcer and veins J. M. SCHMIDT California & West Med. 1935, 43 433

Experiences in the treatment of varicose veins with sclerosing injections B. LAROVIC and D. MILOJEVIC. Vrbanski d. i. Kong. jugoslav. chir. Ges. 1934, 4 974

Experiences with the operative treatment of varicose ulcer D. MILOJEVIC and B. LAROVIC. Vrbanski d. i. Kong. jugoslav. chir. Ges., 1934, 4 980

Arteriovenous anastomosis of the superior thyroid artery and vein J. L. RASMUSSEN Surg. Gynec. & Obst. 1935, 6 214

An anatomoclinical study of crural anastomosis of the head with relationship to the vascular system and to the skeleton of the corresponding member T. ALAJOUANNE, R. THOREL, and T. HONNET Presse med. Par. 1935, No. 93 1835

The surgical treatment of aneurysm W. H. C. ROBERTSON Lancet, 1935, 239 275

The cause of arterial infarctions W. BRACKEN Maclehan med. Wochenschr. 1935, 2 1086

Present trends in the management of peripheral arterial disease H. E. PEARSE, Jr. Internist Clin. 1935, 4 234

An experimental contribution to the surgical treatment of obliterative endarteritis of the extremities A. S. DUBROVSKI and A. GARCIA Semina med. 1935, 43 38

Thrombophlebitis G. P. ZATYEV New Kier. arkh. 1935, 34 203

Thrombo angitis obliterans G. E. BACON Northwest Med. 1935, 34 463

Rosai's therapy of thrombo angitis obliterans (Berger disease) C. E. PFANLER Am. J. Roentgenol. 1935, 34 770

Rosai's disease localized especially in the lobules of the ears cured by specific therapy. Syphilis denied G. MILEAU, A. RAYNA, and L. PIERRE Presse med. Par. 1935, No. 92 216

Considerations on the histological findings in the blood vessels of an extremely aspartated because of spontaneous gangrene A. BELL Clin. chir. 1935, 610

Primary thrombosis of the axillary vein B. V. ALIC CLARK Ann. J. Surg. 1935, 50 459

So-called traumatic thrombosis in the artery on E. ROSSIL Svensk Lakartidsn., 1935, p. 235

The late results of embolotomy performed on arteries of the greater circulation J. P. STADENICK Acta chirurg. Scand. 1935, 77 229

Blood; Transfusion

Antropological studies of blood grouping O. SIEVRA Acta Soc. med. Fennicae Diodecim., 1935, 17 Fasc. 3

Blood transfusion V. KAZOV Vrbanski d. i. Kong. jugoslav. chir. Ges. 1934, 4 964

Are blood transfusions worth while? W. B. TALBOT Med. Hosp. 1935, 45 40

Simplified transfusion technique, experience with 94 transfusions in the Luby Clinic during 1934 H. L. ALBRECHT Surg. Clin. North Am., 1935, 5 941

Group auto transfusion apparatus used in aseptic hemiparesis J. J. GORDON Am. J. Surg. 1935, 50 156

Complications following blood transfusions. An analysis of 100 cases L. T. FARMERSON New Kier. arkh. 1935, 34 220

Hemolytic transfusion reaction with death M. AMOS 204 J. Lancet, 1935 25 205

A case of hemolytic shock cured by the Hesse-Flower method A. BOGNER Zentralbl. f. Chir. 1935, p. 1935

Plasma transfusion as the method of choice in the treatment of hemolytic shock S. W. HEMANS and M. I. SOMMER Zentralbl. f. Chir. 1935, p. 1753

New blood transfusion apparatus D. J. CALVERT Am. J. Surg. 1935, 50 539

Reticulo-Endothelial System

Studies on the functional activity of the reticulo-endothelial system of the fetus M. NITTA Gynecologia, 1935, 1 20

Lymph Glands and Lymphatic Vessels

Thoracic-duct lymph pressure in conscious cords A. BRACKEN J. Lab. & Clin. Med. 1935, 21 246

Factors influencing the quantitative measurement of the roentgen-ray absorption of tooth slabs IV Absorption coefficient factors. H C HODGE, W F BALL, S L WARREN, and G VAN HUYSEN. *Am J Roentgenol*, 1935, 34 817

Correlation of physical and roentgen signs in examination of the chest A V CADDEN. *West Virginia M J*, 1935, 31 536

Triangular basilar paramedastinal shadows V DALL'ACQUA and M BELLI. *Radiol med*, 1935, 22 977 [387]

Lung tomography G GROSSMANN. *Brit J Radiol*, 1935, 8 733 [387]

A study of the roentgenological appearance of the lobes of the lung and the interlobar fissures J LEVITT and H BRUNN. *Radiology*, 1935, 25 651 [387]

Serial bronchography in the diagnosis of suppurative pulmonary processes P L FARINAS. *Am J Roentgenol*, 1935, 34 570 [388]

The negative pressure chamber in the roentgenological demonstration of pulmonary disease H E BURKE. *Am J Roentgenol*, 1935, 34 730

The rôle of the roentgenologist in the proper management of pleural adhesions preventing effective pneumothorax collapse F BAIU. *Radiology*, 1935, 25 730

A surface landmark chart for use in X-ray examinations of the trunk W E ASPACH. *Radiology*, 1935, 25 681

The mechanism of radiotherapy I A study of the mechanism of radiotherapy by means of tissue culture I KOMIYAMA. *Jap J Obst & Gynec*, 1935, 18 403

The biological measurement of depth dosage with 165 kv and 650 kv roentgen rays P S HILSHAW and D S FRANCIS. *Am J Roentgenol*, 1935, 34 780

Our changing concepts regarding the skin dose, with some notes on the production of epidermolysis W L MATTICE. *Am J Roentgenol*, 1935, 34 491 [389]

Neoplasms of the oral and upper respiratory tracts treated by protracted roentgen therapy W HARRIS. *Am J Roentgenol*, 1935, 34 482 [389]

Modern concepts of roentgen therapy in cancer W E CHAMBERLAIN. *J Am M Ass*, 1935, 105 1817 [390]

A histological study of the effects of X rays on frog skin A E LIGHT. *Radiology*, 1935, 25 734

The effects of X-rays on the developing chick J M LEBENBERG. *Radiology*, 1935, 25 739

Radium

The radium treatment of non malignant conditions R E FRICKE. *Minnesota Med*, 1935, 18 780

The relationship between vascularity and the reaction to radium of squamous epithelium M G SEELIG, O T ICKERT, and Z K COOPER. *Am J Cancer*, 1935, 25 585 [390]

Changes produced in abdominal organs by irradiation O SCHULICH and J UHLMANN. *Deutsche Ztschr f Chir*, 1935, 245 261 [391]

Miscellaneous

Advances in physical treatment J MENNELL. *Practitioner*, 1935, 135 533

The treatment of disease by means of electropuncture C A NYMAN. *Proc. Roy Soc Med, Lond*, 1935, 29 151

An experimental contribution to knowledge of the physiopathological action of repeated ultraviolet irradiation in circumscribed areas of the skin M MONTANARI-REGGIANI. *Ann ital di chir*, 1935, 14 831 [391]

The present status of short-wave therapy A LUY. *Wien klin Wchschr*, 1935, 1 772 [392]

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

The physiology of the circulation during puberty G NYLÉN. *Acta med Scand*, 1935, Supp 69

The effect of anticoagulants on the sedimentation rate E M GREISCHNER, A HODAPP, and E GOLDSWORTHY. *Am J M Sc*, 1935, 190 775

Hereditary cleidocranial dysostosis J C MASSEY. *J Med Ass Georgia*, 1935, 24 423

Clinical observations on the treatment of diabetic gangrene P DRECU. *Srpski Arch Lekarst*, 1935, 37 720

The surgical diabetic. C M LEVIN and I N DEALY. *Ann Surg*, 1935, 102 1029 [393]

Tiger-snake venom in the treatment of accessible hemorrhage S ROSENFIELD and S E LEFKOWITZ. *Am J M Sc*, 1935, 190 779 [393]

Monocytic angina. G LONDRES and A DE LIMA FILHO. *Bol Secretaria Geral de Saúde e Assist*, 1935, 1 31

A case of chronic edema of the forearm L OLIVARES. *Actas Soc de cirug de Madrid*, 1935, 4 223

The gaseous exchange in wound healing A STRIGANOVA. *Soviet Khir*, 1935, 5 17

Specific surgical diseases of automobile drivers D E ODIKOV. *Soviet Khir*, 1935, 5 103

A case of Schueller Christian's disease under observation for nine years W A HANSON, L H FOWLER, and F T BELL. *Am J Cancer*, 1935, 25 768

Sea bathing in the treatment of surgical tuberculosis SR H GAUVAIN. *Brit M J*, 1935, 2 1087

The obliterative treatment of bursitis. A N ALMASOV. *Sov Khir arth*, 1935, 14 195

The presence of hemolytic and other streptococci on the human skin I COLEBROOK, W R MAXTED and A M JOHNS. *J Path & Bacteriol*, 1935, 41 521 [394]

An experimental study on the detoxication of streptococcal toxins L KIM. 1935 Jena, Dissertation

Theoretical and practical considerations concerning the use of bacterial vaccines P H LONG. *Internat. Clin*, 1935, 4 76

Psoitis and glandular abscesses of the right iliac fossa E SANTI. *Ann ital di chir*, 1935, 14 893 [394]

An osteodermopathic syndrome, pachydermia with pachyepitheliosis of the extremities TOURNAI, SOLENT, and GOLF. *Presse méd, Par*, 1935, No 92, 1820

Cutaneous calcinosis M J COSTELLO. *New York State J M*, 1935, 35 1266

The pathogenesis of epidermoid cysts T ANARDI. *Clin. chir*, 1935, 11 685 [394]

Two tumors of soft tissues resembling tumors of bone. S A JACOBSON. *Am J Cancer*, 1935, 25 763

Nasofacial congenital angiomatosis. Y FRANCHINI and E RICCIARELLI. *Semana méd*, 1935, 42 1366

Six years' observation of a case of angio-endothelioma about the brachial vessels, two postoperative recurrences, sarcomatous transformation F D'ALLANES, X J CONTADES, and J NAULLEAU. *Bull et mém Soc. nat de chir*, 1935, 61 1134

Xanthomatosis, Schueller Christian disease J DAUKSVIS. *J Missouri State M Ass*, 1935, 31 466

Anesthesia

- Recent experiences and present trends in anesthesia
P D WOODBRIDGE. *Surg. Clin. North Am.* 1935, 81
1573
- Anesthesia in America. G THORP. *Med J. Australia*,
1935, 4: 857
- Anesthesia in Australia. G THORP. *Anes. & Anal.*
1935, 14: 849
- Anesthesia in infant surgery. M E BOWSPON. *Anes.*
& *Anal.* 1935, 4: 856
- Anesthesia service. H S RUTH. *Anes. & Anal.* 1935,
14: 843
- Teaching and anesthesia service from the viewpoint of
surgery. A M WAGNER. *Anes. & Anal.* 1935, 14: 846
- Anesthesia and the results of operation. W LATERO.
Wien. med. Wchnsch. 1935, 791
- The obligations and duties of the anesthetist. U VALDEZ.
Rev. de ciruj. Hosp. Juarez, Mex. 1935, p. 60. [1935]
- A plea for more universal teaching of anesthesia in our
medical colleges. T J COLLIER. *Anes. & Anal.* 1935,
14: 841
- The arterial pressure of the anesthetized at the Giza
Chest. B ROSELOTZ. *Rev. de ciruj. Hosp. Juarez, Mex.*
1935, p. 669
- The biochemical aspects of anesthesia. I MAXWELL.
Med J. Australia, 1935, 4: 841
- Uses of carbon dioxide in anesthesia. E C BLACK.
Med J. Australia, 1935, 4: 840
- Pre-anesthetic agents. C J CARALLERO. *Rev. de ciruj.*
Hosp. Juarez, Mex. 1935, p. 613
- Pre-anesthetic medication in children. B C LEECH.
Anes. & Anal. 1935, 14: 843
- A method of anesthetizing the brachial plexus. P
ROJAS. *Rev. de ciruj. Hosp. Juarez, Mex.* 1935, p. 673
- Sources and pharmacology of impurities in anesthetics.
B L STANTON. *Med J. Australia*, 1935, 4: 843
- A comparison of postoperative complications following
general and spinal anesthesia. B RAJFOORT. *New Eng.*
land J. Med., 1935, 213: 1335. [1934]
- Estimation of, and methods of, meeting surgical and
anesthetic risks and postoperative complications in surgical
diseases of the biliary tract. F V HENRY. *Anes. & Anal.*
1935, 14: 835. [1934]
- Leucocytes following inhalation anesthesia. I B
TAYLOR and R M WATERS. *Anes. & Anal.* 1935, 14: 876
- Anesthetic failures. *Med J. Australia*, 1935, 4: 860
- A new jaw support for use during anesthesia. W
BRANDT. *M. Zentralbl. f. Chir.* 1935, p. 2357
- The choice of anesthesia in some surgical conditions.
G L LILLING. *Med J. Australia*, 1935, 4: 863
- Functional study of the lung and the choice of anesthetic.
R GILBERT. *Rev. de ciruj. Hosp. Juarez, Mex.* 1935, p.
61
- Sodium evipal. J H ROBINSON. *J. Oklahoma State M.*
Assn. 1935, 38: 499
- The use of evipal sodium anesthesia. A D OCKENY and
D P FIDOROVITCH. *Soviet Khir.* 1935, 4: 5
- General anesthesia with sodium evipal. R E FRANK.
Rev. de ciruj. Hosp. Juarez, Mex. 1935, p. 647
- Intravenous sodium evipal in major surgery. C OTTIE.
Rev. de ciruj. Hosp. Juarez, Mex. 1935, p. 651
- Obtaining twilight sleep by the rectal administration
of evipal. H DIERKE. *Zentralbl. f. Gynec.*, 1935, p.
8003
- Accidents with evipal anesthesia. R STORZ and R
NIEDERLAND. *Wien. klin. Wchnsch.* 1935, 790
- Cyclopropane. G S ZIEGLER. *J. Oklahoma State*
M. Assn. 1935, 38: 437
- Cyclopropane anesthesia. H R GASTIN. *Anes. &*
Anal. 1935, 14: 833
- Cyclopropane anesthesia in thoracic surgery. E A
ROBERTSON. *Anes. & Anal.* 1935, 14: 870
- Nitrogenous infiltration anesthesia. F M LIVING-
STON. *J. Oklahoma State M. Assn.* 1935, 38: 440
- The chemical use of vecroline. F W MARTIN. *Anes. &*
Anal. 1935, 14: 877. [1935]
- Neonatal in minor surgery. C J CARALLERO. *Rev. de*
ciruj. Hosp. Juarez, Mex. 1935, p. 677
- Preliminary report of an improved hypnotic and sedative
due to the synergistic action of calcium chloride and
C C ROBINSON. *J. Indiana State M. Assn.* 1935, 28: 66
- General anesthesia and epilepsy. R MEXICO. *Rev.*
de ciruj. Hosp. Juarez, Mex. 1935, p. 650
- Inhalation anesthesia never developed. R M
WATERS. *J. Indiana State M. Assn.* 1935, 28: 69
- Elbow is not dead. Z MIVVILL. *Med J. Australia*,
1935, 4: 837
- Elbow inhalation anesthesia. L R LERO. *J. Oklahoma*
State M. Assn. 1935, 38: 440
- Convulsions under ether anesthesia. W S WILSON.
Anes. & Anal. 1935, 14: 861
- Ethylene anesthesia. F C FILLARD. *Rev. de ciruj.*
Hosp. Juarez, Mex. 1935, p. 647
- The prophylaxis of pulmonary complications following
general anesthesia. L VALETA. *Rev. de ciruj. Hosp.*
Juarez, Mex. 1935, p. 637
- Spinal anesthesia. G C DONLON. *Chanc. M. J.* 1935,
49: 397
- Spinal anesthesia. Agents, methods, and indications.
M BAKLAD. *New England J. Med.*, 1935, 213: 126. [1935]
- The height of spinal anesthesia. G ROJAS. *Rev. de*
ciruj. Hosp. Juarez, Mex. 1935, p. 63
- Posterior glucose solution for spinal anesthesia. L Y
SOX. *Surg. Clin. North Am.* 1935, 5: 1207
- A case of trophic neurotic progress of the extremity
following spinal anesthesia. R L AVENOV. *J. Lancet*,
1935, 85: 800
- Oil soluble anesthetics in rectal surgery. C K MORAN.
Brit. M. J. 1935, 2: 938

Surgical Instruments and Apparatus

- A reliable method for testing the sterility of surgical
catgut suture. R O CLOCK. *Surg. Gynec. & Obst.*
1935, 6: 730

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

- The relationship of roentgenology and surgery. J S HOW-
LEY. *Am. J. Roentgenol.* 1935, 34: 717
- The place of the roentgen ray in the teaching
program of the medical school. W E CHAMBERLAIN and
B K YOCUM. *Am. J. Roentgenol.* 1935, 34: 8
- Capacitor discharge apparatus. G W FINE. *Am. J.*
Roentgenol. 1935, 34: 708
- A dependable development in radiation therapy. F E
WATKINS. *New England J. Med.* 1935, 213: 1324
- Is roentgenography to be serious or ridiculous?
Dr. C WYLL, S R WARRER, JR., and D B O'NEILL.
Med. Hosp. 1935, 43: 3

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The chemistry of cell division. V. The influence of ascorbic acid, glutathione, and cysteine on the activity of tumor nucleases. M. E. MAYER and C. VONSTERN. *Am. J. Cancer*, 1935, 25, 780.

Differences observed in the tumor incidence of an albino strain of mice following a change in diet. J. J. BRIDGES. *Am. J. Cancer*, 1935, 25, 79.

Tests with the Klemm method of determining the blood remnants to malignant tumors. L. ESNOW. *Zentralbl. f. Chir.*, 1935, p. 2336.

A comparative cytological study of benign and malignant tumors. H. K. FILLER. *Am. J. Cancer*, 1935, 25, 77.

Points in the diagnosis of cancer. B. B. COHEN. *J. Oklahoma State M. Ass.*, 1935, 28, 447.

Cancer as a problem in metabolism. H. H. BEARD. *Arch. Int. Med.*, 1935, 50, 1143.

The etiology of cancer: partial review. L. F. CHAYER. *J. Am. M. Ass.*, 1935, 95, 1830.

Nuclear nucleolar volume ratio in cancer. P. H. GUTTMAN and S. HALPERN. *Am. J. Cancer*, 1935, 25, 80.

The study of cancer: recent advances of clinical significance. J. J. STERN. *Am. J. Surg.*, 1935, 50, 513.

Comparative studies on carcinogenesis in rats. A. F. WATSON. *Am. J. Cancer*, 1935, 25, 753.

Cancer survey of Michigan. F. L. KIRBY. *J. Michigan State M. Soc.*, 1935, 34, 778.

Cancer in J. vs. and Bernini. C. BOYER. *Am. J. Cancer*, 1935, 25, 8.

A new cancer reaction. M. ARON. *Rev. Soc. argent. de biol.*, 1934, 0, 138.

Klebs's carcinoma reaction. KIRSCHNER. *Zentralbl. f. Chir.*, 1935, p. 137.

The possible effect of oil of gentiana in the diet of mice susceptible to spontaneous carcinoma of the breast. III. Survival time. L. C. STENOVO. *Am. J. Cancer*, 1935, 25, 797.

The effect of sodium formaldehyde sulphonylate on rat tumors. J. C. KRAVITZ, JR., R. MURPHY, C. J. CARR, and W. G. HANCOCK. *Am. J. Cancer*, 1935, 25, 789.

The problem of retarding effect of cystine disulphide. T. F. LAYNE. *Am. J. Cancer*, 1935, 25, 800.

The effect of methylcholanthrene on the developmental growth of obese gonoclasts. F. S. HANCOCK and S. P. MEYER. *Am. J. Cancer*, 1935, 25, 807.

Considerations of the variable recovery factor of tumor. J. G. HOFFMAN and M. C. REYNOLDS. *Radiology*, 1935, 25, 698.

The action of hemolytic substances on skin regeneration. D. G. GONZALEZ. *Nov. Khir. arkh.*, 1935, 34, 14.

The trophoblastic graft. R. M. MAY. *Presse med.*, 1935, No. 24, 85. [1934]

Successful transplantation of the bovine hypophysis into man. C. P. WALTON, J. R. MCKINNEY, and S. B. LECHERT. *Bol. Soc. de abet. y med. de Buenos Aires*, 1935, 14, 63. [1934]

Psychical trauma in surgery. L. A. DYVA. *Nov. Khir. arkh.*, 1935, 34.

The role of allergic sensibility in surgery. V. M. TROIT. *Nov. Khir. arkh.*, 1935, 34, 67.

General Bacterial, Protozoan, and Parasitic Infections

A critique of sepsis therapy. K. BROOD. *Fortschr. d. Therap.*, 1935, 11, 103, 205.

Ductless Glands

An atypical lamellar endocrinopathy in males. (ik says disease of other defects. W. A. REILLY. *Endocrinology*, 1935, 9, 630.

The hypophysis and body metabolism. J. E. SWEN. *Ann. Surg.*, 1935, 3, 509.

Experimental studies of the anterior lobe of the pituitary gland. III. Observations on the persistence of hypophyseal transplants in the anterior eye chamber. H. O. HARTZ, M. SCHWEIZER, and H. A. CHASTYTER. *Endocrinology*, 1935, 9, 673.

Studies on conditions of activity in the endocrine organs. XXX. The nervous control of the anterior hypophysis as indicated by castration of ova and evaluation after stimulation of the cervical sympathetic. H. B. FINKENBERG and O. PRYER. *Endocrinology*, 1935, 9, 710.

The diagnosis of pituitary disease. A. FARBER. *J. Michigan State M. Soc.*, 1935, 34, 747.

The Lawrence-Moon-Biedl syndrome. A report of three cases. M. MONTUZZI, R. C. GLANDER, and A. W. PERRY. *Endocrinology*, 1935, 9, 683.

Changes in certain of the glands of internal secretion: parathyroid, thyroid, suprarenal, following the experimental external derivation of bile, cholecystectomy. R. LEONARD and A. JUNG. *Presse med. Par.*, 1935, No. 34, 792.

The relationship between argenti-fine cells and certain glands of internal secretion: the suprarenal and the pancreas. M. TARANTINI. *Arch. ital. di chir.*, 1935, 41, 67.

The effect of ovarian hormones and adrenal grafts upon the mammary glands of male mice. W. U. GARNETT. *Endocrinology*, 1935, 9, 690.

On the clinical use of emmenex (human placental extract-Cellip). M. B. GOLDBERG and H. LINDER. *Endocrinology*, 1935, 10, 640.

Hospitals; Medical Education and History

The teaching of general surgery. T. D. KORAKOV. *Nov. Khir. arkh.*, 1935, 34, 36.

The teaching of operative surgery and topographic anatomy. V. P. VOYTSKOVSKY. *Soviet Khir.*, 1935, 4, 3.

The teaching of topographic anatomy and operative surgery in medical schools. T. M. BOGOMOL, S. B. GROSS, and E. S. RABINOVICH. *Soviet Khir.*, 1935, 4, 13.

A letter to the editor regarding the teaching of topographic anatomy and operative surgery. V. N. SIVYK. *Soviet Khir.*, 1935, 4, 9.

The problems of surgical teaching in medical schools. V. M. SVATKOVICH. *Soviet Khir.*, 1935, 4, 3.

The training of internes. V. R. KIRICH. *Soviet Khir.*, 1935, 4, 0.

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COLLECTIVE REVIEW

SUTURE MATERIAL A REVIEW OF RECENT LITERATURE

CORNELIUS J. KRAISS, M.D.

From the Department of Surgery, College of Physicians and Surgeons, Columbia University, New York, New York

THERE are no more important adjuncts to surgery than sutures and ligatures, and yet, with all our advances in the sciences, we have not answered the fundamental questions of sterility and absorbability which faced our predecessors.

The literature during the past few years indicates that these problems are being carefully studied, but with our increase in knowledge, we are beginning to appreciate the complexity of the reactions which take place when a suture, particularly an absorbable suture, is buried in the tissues.

An ideal suture should be sterile, pliable, and cause no reactions. It should maintain sufficient tensile strength to approximate the tissues until they have firmly united and should be absorbed soon after its function has ceased. This ideal has not yet been achieved, but meanwhile we should employ the material which most nearly approaches it.

ABSORBABLE SUTURE MATERIAL

Catgut

Because of its source of supply, the main problem with catgut is sterilization without impairment of its tensile strength or alteration of its absorbability, as indicated by the numerous publications on this subject.

After the original classical studies of Lister, very little progress was made with this problem until the elaborate report of Bulloch, Lampitt, and Bushill based on the first careful anaerobic studies of catgut bacteriology, which described in detail

the preparation of catgut and the various methods of sterilization in vogue at that time. This resulted in stimulation of interest in the whole question particularly in view of the fact that cases of gas gangrene and tetanus were continually appearing.

In the United States, McJeney revived interest by demonstrating beyond doubt the relationship between a group of postoperative infections and contaminated catgut, and pointed out the danger of inadequate sterilization and the necessity for consistently applying an efficient test to prove sterility. This method for determining the sterility of catgut is now generally used by the reliable suture manufacturers. Clock has suggested some additional controls and has shown that in chemically sterilized catgut the chemicals must be eliminated or they may act as inhibiting agents. He proved the inefficiency of chemical sterilization, using twenty-seven different materials, and pointed out the fact that foreign catgut, which is usually sterilized by chemicals, is very frequently infected. The percentages given were only relative as the number of samples in each instance was not the same. For the past five years Clock has examined also the products of 12 American manufacturers. He finds that only 5 of them were consistently sterile, while 6 were repeatedly unsterile and the others occasionally unsterile. He therefore points out that the dangers of unsterile catgut still exist, and that the industry has not yet an adequate governmental or professional supervision.

A similar need was felt to exist in France by Goris. In Germany, although the State Hy-

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Because of its source of supply, the main problem with catgut is sterilization without impairment of its tensile strength or alteration of its absorbability, as indicated by the numerous publications on this subject.

After the original classical studies of Lister, very little progress was made with this problem until the elaborate report of Bulloch, Lampitt, and Bushill based on the first careful anaerobic studies of catgut bacteriology, which described in detail

the preparation of catgut and the various methods of sterilization in vogue at that time. This resulted in stimulation of interest in the whole question, particularly in view of the fact that cases of gas gangrene and tetanus were continually appearing.

In the United States, Meleney revived interest by demonstrating beyond doubt the relationship between a group of postoperative infections and contaminated catgut, and pointed out the danger of inadequate sterilization and the necessity for consistently applying an efficient test to prove sterility. This method for determining the sterility of catgut is now generally used by the reliable ligature manufacturers. Clock has suggested some additional controls and has shown that in chemically sterilized catgut the chemicals must be eliminated or they may act as inhibiting agents. He proved the inefficiency of chemical sterilization, using twenty-seven different materials, and pointed out the fact that foreign catgut, which is usually sterilized by chemicals, is very frequently infected. The percentages given were only relative as the number of samples in each instance was not the same. For the past five years Clock has examined also the products of 12 American manufacturers. He finds that only 5 of them were consistently sterile, while 6 were repeatedly unsterile and the others occasionally unsterile. He therefore points out that the dangers of unsterile catgut still exist, and that the industry has not yet an adequate governmental or professional supervision.

A similar need was felt to exist in France by Gours. In Germany, although the State Hy-

genic Bureau has had some control in the past, the catgut manufacturers with the German Society for Surgery propose to establish a central bureau for systematic examination of suture material under the direction of the government. Konrich and Ziesler have referred to this in a discussion of the catgut question. Working independently, they examined over 44,664 meters of catgut and came to the conclusion that there is no fundamentally sterile catgut. They find the organisms causing gangrene and malignant edema only one third as often in the German product as in "foreign" catgut and twice as many kinds of organisms in the "foreign" products. However they feel that the actual incidence of infection is not high enough to warrant discontinuing the use of catgut.

Throughout Europe, as stated previously, catgut is still manually sterilized by chemical methods, principally by the use of iodine. Porteous has described at length the method used in Scotland, which consists of immersing the ribbons in iodine solution, extracting them with alcohol, and immersing them in a solution of potassium iodate. After other finishing processes the catgut is shipped to the hospitals where it is recommended that tests for anaerobic spores be conducted, the tensile strength determined and the gut then put on spools for final sterilizing. The final sterilization is accomplished by a solution of iodine, potassium iodide, and potassium iodate. Washing and extracting with alcohol is again done and bacteriological tests are repeated. This method is widely used and is briefly outlined to show its complexity. It is said that only 9 unsterile samples were found in 439 tests. Holm has used English catgut prepared by a similar method, and has not found an infected sample in two years.

In Australia, because of several cases of tetanus, the necessity of using a safe method of sterilization was emphasized by Kellaway and Williams who state that the bismuth method is ineffectual. J. Smith, Jr. describes a variation of the iodine method and in addition uses formalin for hardening.

Fandre believes that, in order to be most effective, the iodine should be nascent. He therefore releases it from an iodine-potassium iodide solution with hydrochloric acid which he later neutralizes. The final product is said to be indisputably sterile.

In a discussion of the catgut problem from the military aspect Storp states that the most satisfactory product is obtained by a modification of the method of Budde, viz. a heat treated, iodized catgut. However Ziesler emphasizes that the estimation of the efficiency of any method requires

the examination of sufficient material and a careful check of the cultures, especially if an antiseptic agent is used.

Another method of chemical sterilization which, it is said, will revolutionize the industry is the use of finely divided silver described by Lindert. The silver is impregnated in the gut by a secret process. According to Lieb, who made thorough tests, it is given off slowly in toxic form so that its bactericidal action is continuous and effective even for spore-forming organisms. The material may be further sterilized by the usual methods without losing this bactericidal action, and is said not to cause irritation when introduced into tissues.

In Japan, a combination of heat and chemical agents is used. T. Uyama heats the catgut in an air tight chamber in alcohol and takes to 200 degrees C. Gut prepared from bones, goats, and steers may also be prepared in this way. Uyama confirms this method and in addition uses chloroform or xylol.

The time of absorption of suture material has received more attention of late and its relation to the physical properties of the material, the reaction of the chemicals incorporated in it, and the possibilities of sensitivity are being investigated.

Physical properties. Ziegler and Clark have described a method for studying the texture of the material by an X-ray diffraction pattern. It is said that the tensile strength and absorption time are related to this pattern. The method is highly scientific, but appears to be too technical to be of practical value for general use.

Haefen called attention to the fact that up to the time of his publication no comprehensive study of the absorption time of suture material had been made. He buried iodized catgut in the subcutaneous tissue and muscle in the backs of rabbits and removed it for microscopic examination. He finds that this type of gut may remain in the tissue up to one hundred and twenty days.

Because of the lack of consistency in the results of determinations of the absorption time in animals, Krahl and Melency devised an apparatus for determining the digestion rate *in vitro*. The gut is put in a 2 per cent trypsin solution and a weight suspended from it with a mechanism arranged to record the time. The apparatus has now been considerably improved, the slip-knot on the glass rod and other possible sources of error having been eliminated. It has been found that variation exists between the products of 10 manufacturers of catgut, but that the product of each digests within a fairly constant time. Occasionally however a strand digests in a con-

siderably shorter time than the average for its particular quality. This has been attributed to flaws, foreign bodies in the gut, and links at the points of bending where fraying occurs. Other factors influencing the digestion are size, degree of chromicizing, and whether the gut is boilable (hygroscopic) or non-boilable. One outstanding observation is the resistance to digestion of foreign-made catgut. It is believed that this may be attributed to the chemicals used for sterilization which may act as inhibitors to the enzyme action as they do to bacterial growth as shown by Clock, or act as fixatives, particularly when formalin has been used.

Effect of chemicals. The problem of the reaction in the tissues to chemicals in the suture has received too little attention. Reil, who has studied this to some extent, shows that when the protein is broken down into its various components, the metals and halogens in the suture unite with the tissue cells and cause a reaction. In Haefen's description of the appearance of the tissue in which iodized catgut was buried, the walls of the suture canal were said to show aseptic necrosis. This is readily understood since Schulze and Henning found that iodized catgut contains from 1 to 6 per cent of iodine of which 60 per cent is free, 30 per cent is in the acid form, and only 10 per cent is combined with the protein. In the case of the sterilized catgut we do not have this problem, but we must consider the effect of the liberation of the chromium which is quite toxic in larger amounts and the fact that certain individuals may be allergic to it, as has been shown by A. Smith.

Catgut allergy. When the question of sensitivity to catgut is raised the most interesting speculations present themselves. Babcock has referred to this in an article dealing with metal wire. He reports the occurrence of local reactions in all patients tested with short sections of catgut buried in the sterilized skin by Pratt and Small. However, because of bacterial contamination from the base of hair follicles and sweat glands and the fact that all patients showed some reaction, it is a question whether or not these tests constituted a true demonstration of allergy.

Trapp reports the case of a patient who suffered from severe asthma while convalescing from a second operation. The asthma disappeared after a few weeks, when it was assumed the catgut suture material had been absorbed. Unfortunately no skin tests were made to confirm this sensitivity.

Experimentally some very interesting results have been obtained by sensitizing animals. Marchesani was able to demonstrate general reactions in about one-third of 5 series of guinea

pigs sensitized with sheep serum, catgut extract, and catgut. Local reactions were produced by burying catgut in the tissues. These consisted of edema, hyperemia, and occasionally necrosis. Control animals did not show such reactions.

The so-called Arthus phenomenon was thought to be a possible cause of postoperative complications by Grata and Gilson who produced reactions in the abdominal cavities of sensitive guinea pigs by introducing catgut. Moriconi was unable to produce evidence of allergy in rabbits which was manifested by antigenic properties of the blood and general or local reactions. He believed that this may be due to a loss of specificity of the protein, but it must be borne in mind that rabbits are not easily sensitized and he was probably using catgut subjected to chemical sterilization which interferes with its absorption.

In an unpublished preliminary study, Kraissl and Kesten have produced 6 disruptions of laparotomies sutured with catgut in 10 sensitized guinea pigs. Disruptions did not occur in the 6 control animals. In an attempt to determine the possible relationship of catgut sensitivity to wound disruption in patients, intradermal skin tests of extracts of plain catgut, chromic catgut, and chromic acid were made. It was found that all of the patients who had a history of allergy and in whom disruption had occurred were sensitive to one or more antigens. The next highest incidence of sensitivity was in patients with some allergic manifestations. In the relatively normal individual sensitivity was demonstrated only occasionally. It is suggested that when catgut is used, the patient's sensitivity should be determined, especially if there is a history of allergy.

Other Absorbable Suture Material

Principally because of the difficulty of sterilizing catgut with its many and dangerous bacteria, experiments are being carried out to adapt other animal protein for suture material.

Carnofil. Carnofil is a suture material originally prepared by Bost from muscle tissue of the horse. Collier states that it is even, wiry, and flexible. A strand 0.5 mm in diameter will withstand a tension of 15 kgm, and a strand 0.8 mm in diameter, a tension of 110 kgm. It is said to be originally relatively free from bacteria and may be subjected to unlimited sterilization without impairment of its properties (Schmidt). Lange says that it is absorbed well, and after experimental study concludes that it will not produce anaphylaxis except in sensitized animals.

Nerve. An experimental study has been made on dogs' nerves by Preobrazenskij. These were

removed aseptically treated with 20 per cent acetic acid, twisted, dried, and sterilized in 2 per cent brilliant green. They were used as intestinal sutures. Healing was satisfactory with absorption in from twelve to fourteen days.

Umbilical cord. Sidelinoff suggests the use of sutures made from the umbilical cord. He points out that they are relatively sterile and inexpensive, and become absorbed more readily than catgut.

NON-ABSORBABLE SUTURE MATERIAL

If a trend could be said to exist in the literature on suture material, it is that surgeons are losing confidence to some extent in absorbable material and depending more on non-absorbable material for the repair of clean wounds.

Silk. With the increase in the efficiency of execution of aseptic technique, gentle handling of tissues, and other attributes of a skillful surgeon, Whipple finds fewer infections, fewer complications, and better general results from the use of silk where it is indicated. This may be used in smaller sizes than catgut, smaller needles may be employed and less trauma is produced to the tissues.

Silk is being used with increasing frequency in breast amputations, herniotomies, neck dissections, and other clean operations. Certain precautions however are advised adequate pre-operative skin preparation, the avoidance of tight constricting sutures, mass ligations, crushing of the tissue, careless hemostasis, rough blunt scissors dissections and its use as a continuous suture or in combination with catgut. Experimental studies have shown that wounds in the stomachs of rats which are sutured with silk are stronger than those sutured with catgut.

Silk is usually prepared by boiling with the instruments, but Sangley insists that it should be boiled in an antiseptic agent such as a 1:1,000 solution of bichloride of mercury.

In Germany silk has been sterilized by steam at 120 degrees C. Konrad recommends this procedure and says that the tensile strength of the silk is not altered by repeating the process 5 times. He also calls attention to the fact that the alcohol in which the silk is stored should be sterilized as it may harbor anaerobic spores. In Japan, Onodera sterilizes silk in an aqueous solution of hydrogen peroxide which he found to be more efficient than 9 other antiseptics. This is confirmed by Onoda, who says that a 3 per cent solution of hydrogen peroxide will kill the most resistant spores in an hour at 98.6 degrees F.

Metal wire. Although not at all new the use of metal wire appears to be gaining in favor with

surgeons in many parts of the world. The rapidity with which the abdomen may be closed with wire in emergency cases has been shown by Reid, Zieminger and Merrill who have been using silver wire for this purpose for the past ten years. Certain disadvantages, however, may exist: the patients often complain of pain while the sutures are in, there is a certain amount of infection about the wire and there is some cutting of the tissues which results in scars. Offsetting these are the rapidity of execution of the closure and the fact that the wires may be untwisted if they are constricting the tissues and may be removed to allow for drainage if necessary. One feels that the wounds are secure as disruption is rare. It occurred only partially in 2 of 334 cases in which such suturing was done, and in these, it was said, the sutures were put in too far apart. Wire suturing is particularly suitable in the cases of elderly persons as it permits them to get up earlier than usual and thus decreases the incidence of post-operative complications. Soberon has used silver wire to advantage particularly in the repair of large ventral hernias. He points out the necessity for the prevention of kinking as this may lead to difficulty when the wire is removed.

Babcock has recommended the use of a Russian alloy of stainless steel wire (noble metal). He says that it is less brittle than silver or bronze wire and is strong, smooth, non-irritating, and very inexpensive. It is used in a very fine size for the skin and a slightly larger size for supporting sutures. It is said to be used also in infected and contaminated wounds as a ligature as well as a suture, but its reaction under these circumstances was not described.

In France, an alloy called "nickelfine" has been employed by Minnie in gynecological operations and for the closure of abdominal wounds. The ends of the deep sutures are allowed to extend through the skin so that they may be removed after the tissues are well healed. It is also said that if trivial infections occur in the skin, they are not carried to the deeper tissues by the suture material. In Russia, Voskresenski employed nickelfine wire in 284 operations with very satisfactory wound healing, but he points out that it should not be employed where any great tension of tissues exists.

In Germany an alloy of zinc, silver and copper has been used by Moeller Moernach for suture material. He describes also a fabric woven from this wire which may be employed to cover small defects. However the local toxic effect should be borne in mind. Okletz classifies metallic suture materials into 3 groups according to toxicity:

to accelerate callus formation, and to be particularly useful in cases of malunion.

Gratz and Robison have found that fascial sutures are helpful in holding bone grafts in place, but of course these are valuable in many fields of surgery, as pointed out by Brindle.

Ligation of large arteries. Arterial ligation has received particular attention by Reid. He emphasizes the necessity of using a ligature proportionate to the size of the vessel and the prevention of cutting of the media by a small ligature against arterial tension. This may be avoided by temporarily checking the tension by pressure above the point of ligation. Non-absorbable material is preferred, as catgut may stretch or become absorbed too rapidly. This is true especially when infection is present. Reid believes that the subsequent removal of a ligature is much less dangerous than premature absorption and secondary hemorrhage. He advises against burying a ligated vessel in the presence of infection as this localizes the infection about the vessel and may cause necrosis and perforation.

Local anesthesia. Some question has arisen regarding the reaction of suture material in tissue in which a local anesthetic has been infiltrated. Nisnevich and Segal have studied this problem experimentally in rabbits. They found that local anesthesia causes a moderate sterile inflammatory reaction with a pronounced round-cell infiltration which subsides in a few days. The type of reaction about both kinds of suture material and the wound healing were not appreciably altered.

NEW INSTRUMENTS

Suture clamps. For gastro-intestinal surgery Bruecke describes multiple suture clamps which he says may be applied more quickly, render it unnecessary to introduce sutures through the infected contents of the bowel, and are not expensive. The suture clamps are covered with a single or double layer of sutures after the part has been divided with the cautery and removed.

Sterilcoat. A container for catgut has been termed "sterilcoat" by Charlier. It consists of an inner panel in which up to 8 tubes of sterilized suture material may be placed. This is put into a second sterile container which has small funnels opposite the tubes and the suture material is drawn through the corresponding funnel. The container offers a readily available supply of suture material of any size.

There have been other improvements in technique and new instruments have been described, but these have been left to other reviews of the specialties to which they belong.

CONCLUSIONS

The publications during the past few years reflect the growing tendency to rely more on non-absorbable material for sutures and ligatures, particularly silk and metal alloys. Although the quality of catgut is improving, one cannot be absolutely sure of its sterility and one certainly cannot depend on its absorbability. The questions of allergic sensitivity and toxic effect of liberate chemicals add to the complexity of the problem. Other absorbable materials have been suggested, but they are for the most part still in the experimental stage. Therefore, after giving each individual case serious consideration, one must use the suture material best adapted to the purpose.

Again it should be pointed out, as has been suggested many times before, that there exists a tremendous need for adequate control of the entire suture industry supervised by the government with the collaboration of a committee from the American College of Surgeons, so that surgeons may feel relatively sure of the suture or ligature on which so much depends.

BIBLIOGRAPHY

1. ALLEY, J. C. B. The lethal of catgut. *Med. J. Australia* 1934, 2: 250-251.
2. ANTONOVICH, N. The use of horsehair in surgery. *Soviet. Vrach* 1933, 2: 3-114.
3. ANDRUSIL, M. The sterilization of catgut and post-operative tetanus. *Med. J. Australia*, 414: 110.
4. BARNETT, W. H. Catgut allergy. Work done on the use of alloy steel wire for sutures and ligatures. *Am. J. Surg.* 1935, 57: 67-70.
5. Idem. Ligatures and sutures of alloy steel wire. *J. Am. M. Ass.* 1934, 101: 1778.
6. BERT, T. Una nuova sutura cutanea. *Arch. e. med. Soc. Lomb. Chir.* 1915, 3: 1047-1049.
7. BERTON, W. S. The use of tannic acid suture. *Br. M. J.* 1934, 3: 810-811.
8. BUECKE, Neutrage Yachseange. *Zentralbl. f. Chir.* 1935, 62: 712-713.
9. BULLOCK, W. LAWRENCE, L. H. and BULLOCK, J. H. The preparation of catgut for surgical use. *Proc. Med. Research Council, Spec. Rep. Series* 135, 1935.
10. CANOZZI, L. and BERTINI, G. Ricerche sperimentali sulle suture di ferro del legato e della suture metallica catgut. *Arch. e. med. Soc. Lomb. Chir.* 1914, 4: 575-631.
- CHARLIER. Sterilcoat, ein neuer praktischer Nahtmaterialbehälter fuer chirurgische Operationen. *Zentralbl. f. Chir.* 1935, 62: 64.
- CLARK, R. D. A reliable method for testing the sterility of surgical catgut sutures. *Surg. Gynec. & Obst.* 1934, 5: 245.
- Idem. The fallacy of chemical sterilization of sutured sutures. *Obst.* 1935, 45: 45.
- Idem. The present status of the sterility of surgical catgut sutures. *Obst.* 1935, 45: 203-205.
- Idem. The sterility of surgical catgut sutures. *Obst.* 1934, 44: 827-830.
- COLEMAN, W. A. Ueber ein neues physikalisches Nahtmaterial. *Med. Klin.* 1934, 29: 712-713.

- 17 DAVIS, J S The on-end or vertical mattress suture
Ann Surg, 1933, 98 941-951
- 18 FANDRE, A Le problème du catgut. *Tech chir*, 1934,
26 304-305
- 19 GORIS, A De la nécessité de créer une industrie
spéciale pour la corde à catguts *Bull d sc pharma*
col, 1934, 41 513-524
- 20 GRATIA, A, and GILSON, O Le phénomène d'Arthus
au catgut cause insoupçonnée d'accidents post-
opératoires *Bull Acad roy de méd de Belgique*,
1934 14 125-136
- 21 GRATZ, C M, and ROBINSON, R P Living sutures as
a supplement to plastic bone surgery *Am J Surg*,
1934, 26 362-367
- 22 HAEFEN, K von Ein Beitrag zur Katgutresorption
Beitr z klin Chir, 1933, 158 449-456
- 23 HARVEY, S C Concerning the suture *Surg*, *Gynec.*
& *Obst*, 1934, 58 791
- 24 HOLM, F Englisches catgut *Ugesk*, f *Læger* 1933,
pp 600-611
- 25 JEANNEVEY, G, and ROSSER, M Sutures esthétiques
J de méd. de Bordeaux, 1935, 112 672
- 26 KELLAWAY, C H, and WILLIAMS, F F The steriliza-
tion of catgut. *Australian & New Zealand J Surg*,
1934, 4 118-122
- 27 KONRICH Notiz zur Dampfsterilisation von Seide
und Zwirn *Arch f klin Chir*, 1935, 182 109-200
- 28 Idem. Ueber die Sterilisation chirurgischer Nachseide
Ibid, 1934, 179 370-374.
- 29 KONRICH and ZEISSLER Zur Catgutfrage *Ibid*,
1933, 177 742-755
- 30 KRAISSL, C J, and MELENEY, F L A method for
determining the time of catgut digestion *in vitro*
Surg, *Gynec.* & *Obst*, 1934, 50 161-164
- 31 LIEB F Ueber ein neues, mit Silber imprägniertes
chirurgisches Verband- und Nahtmaterial *Deutsche*
med Wchnschr, 1934, 60 520-521
- 32 LENHART, W Ueber neues oligodynamisch hochaktiv
wirksames Verband- und Nahtmaterial *Zentralbl*
f Chir, 1934 61 2890-2896
- 33 MARCHESANI, O Ueber Catgut anaphylaxie *Ber*
l. d Versamml d deutsch ophth Gesellsch, 1932,
49 233-238
- 34 MELENEY, F L Infection in clean operative wounds
Surg, *Gynec.* & *Obst*, 1935, 60 264-276
- 35 MELENEY, F L, and CHATFIELD, M How can we
insure sterility of catgut? *Ibid*, 1930, 50 271-277
- 36 Idem The sterility of catgut in relation to hospital
infections With an effective test for the sterility
of catgut. *Ibid*, 1931, 52 430-441
- 37 MELENEY, F L, HUMPHREYS, F B, and CARP, L
An unusual fatal operative wound infection yielding
a pathogenic anaerobic organism of the gas gan-
grene Group *Ibid*, 1927, 45 775-789
- 38 MINTVE, N S Suture au fil métallique des plaies
opératoires. *Rev franç de gynéc. et d'obst*, 1935,
30 201-206
- 39 MORICONT, L Ricerca di proprietà antigene del cat-
gut. *Rassegna internaz. di clin e terap*, 1933, 14
942-950
- 40 MUELLER-MEERNACH, O Die neue Drahtlitze
Zentralbl f Chir, 1935, 62 310-311
- 41 NISNEVICH, L M, and SEGAL, I M Healing of post
operative wounds as influenced by the method of
anesthesia and suture material *Sovet khir*, 1933,
4 663-668
- 42 NOGARA, G Sulle modalità di cicatrizzazione delle
ferite chirurgiche dello stomaco in rapporto alla
tecnica di sutura impiegata *Arch ital di chir*,
1934, 36 111-159 Abstracted *Int. Abst Surg*,
1935, 60 214-216
- 43 ORKELS, H Undersogelser over nogle metaller
direkte giftvirkning par cellerne med særligt hen-
blik par suture materialls og osteosynteses *Hosp-*
Tid, 1934, 77 946-948
- 44 ONODA, H Studies on the disinfection of the silk
suture thread and the prevention of the suture
abscess *Z Jap chir Ges*, 1934 35 44-45
- 45 ONODRA, H Experimental study with silk thread
used in surgical sutures *Verh Jap chir Ges*, 1934,
12
- 46 PORTIUS, L R The preparation of catgut for surgi-
cal use *Edinburgh M J*, 1934, 41 245-260
- 47 PROBRAZENSKI, P Nerve as resorbable suture ma-
terial *Vestnik khir*, 1933, 75-76 59-60
- 48 REID, M R The ligation of large arteries *Surg*,
Gynec. & *Obst*, 1934, 58 287-296
- 49 REID, M R, ZIMMER, M M, and MERRELL, P
Closure of the abdomen with through and through
silver wire sutures in cases of acute abdominal
emergencies *Ann Surg*, 1933, 98 890-896
- 50 REIL, H Beitrag zum Catgut Problem *Chirurg*
1932, 4 27
- 51 SCHMIDT LANGE, W Untersuchungen ueber Ana-
phylaxiegefahr und Zugfestigkeit an dem neuen
Nahtmaterial "Carnofil Bost" *Muenchen med*
Wchnschr, 1935, 82 585-586
- 52 SCHULZE and HILFING Ueber den Jodgehalt des
Jodcatguts seine Veränderung und seine Einwirk-
ung auf die Reißfestigkeit des Catguts während
des Lagerens *Veroeffentl Heeresan. wes*, 1934,
93 15-59
- 53 SIDELNIKOFF, S Versuch einer Ausnuetzung der
Nabelschnur als Nahtmaterial *Ginec*, 1935, 2-3
122-126
- 54 SINCLY, J D Preparation of sutures for use in clean
wounds *Ann Surg*, 1934, 100 559-560
- 55 SMITH, A R Chrome poisoning with manifestations
of sensitization *J Am. Med Ass*, 1931, 97 05-08
- 56 SMITH, J JR The preparation of catgut for surgical
use *Australian & New Zealand J Surg*, 1934, 4
122-129
- 57 SOBERÓN, M R Sutures y ligaduras quirúrgicas
Acad Mexicana d Chir, Mexico, D F, 1933, p
245
- 58 STORP, W Zur Catgutfrage. *Veroeffentl Heeresan*
wes, 1934, 93 5
- 59 TRIPP, H D Catgut allergy *J Indiana State M*
Ass, 1934, 28 383-384
- 60 UYAMA, S Ueber die neue methode der Catgutsterili-
sation und das ideale Catgut. *Verhandl. jap chir*,
1934, 1
- 61 UYAMA, T Catgutfrage und mein catgut. *Z jap*
chir, deutsch Zus, 1934, 35 8-9
- 62 VERBRUGGE, J Le matériel métallique résorbable en
chirurgie osseuse. *Presse méd*, Par, 1934, 42
460-465
- 63 VOSKRESENSKI, N V Fine nickel wire as suture ma-
terial *Sovet khir*, 1933, 4 482-485
- 64 WHIPPLE, A O The use of silk in the repair of clean
wounds *Ann. Surg*, 1933, 98 662-671
- 65 ZEISSLER, J Urteile ueber Catgut. *Muenchen med.*
Wchnschr, 1933, 11 1986
- 66 ZIEGLER, P F, and CLARK, G L The X-ray in the
study of the catgut ligature *Surg*, *Gynec.* &
Obst, 1934, 58 578-589

ABSTRACTS OF CURRENT LITERATURE

SURGERY OF THE HEAD AND NECK

HEAD

Gaechlecker, C. F.: Primary Tumors of the Cranial Bones. *Am J Cancer* 1934, 26 55

The author reviews a series of 52 primary tumors of the cranial bones. These included thirty nine benign tumors—11 osteomas, 1 intracranial hyperostosis, 3 osteochondromas, 4 giant-cell tumors, 5 angiomas, and 15 cysts, cholesteatomas, and Brodie's abscesses—and 13 malignant tumors—8 osteogenic sarcomas, 3 Ewing sarcomas, 1 fibrosarcoma, and 1 chondroma.

The typical cranial osteoma is a benign, mound like swelling occurring in the frontal region in a young adult. Of the 11 patients with such a tumor whose cases are reviewed, 9 were between the ages of eighteen and thirty three years. The youngest was thirteen years and the oldest seventy years. The average duration of the tumor was eighteen years. Eight of the patients attributed the appearance of the neoplasm to a severe blow or fall. The first sign noticed is usually a hard, immovable, painless swelling on the surface of the skull. The characteristic roentgen findings are a dense mass of new bone with a smooth convex outer border and a wavy sharply demarcated base formed by the thickened or slightly depressed inner table of the skull, and, in the region of the outer table a border of decreased density over the surface of the growth which represents the growing margin of the tumor. The tumor appears to be a continuation of the diploe. Osteomas of the cranial surface must be differentiated in the roentgenogram from the hyperostoses resulting from meningioma tumors invading the skull. In the latter the new bone formation shows more definitely radiating spicules which extend at right angles from the inner and outer tables of the skull. The periosteum and rarefied tables of the skull can be traced through the center of the radiating osteocytes.

The growth of the osteomas appears to follow the physiology of ossification in membranous bone. Normally the skull increases in thickness by the subperiosteal deposition of bone, the periosteum being formed directly from per-osteous connective tissue. The persistence of the overlying periosteal layer and the increase of fibrous tissue in this region in growing osteomas suggest that the tumor is the result of ossification proceeding from the periosteal or subperiosteal region of the skull. In a study of 26 cases Echlin was impressed with the fact that 50 per cent of the tumors arose before the eighth year of life and 75 per cent before the twelfth year. He emphasized the relatively high frequency of oste-

omas in the frontal or facial bones. This age incidence and distribution he attributed to the persistence of normal growth in the frontal and facial bones, which continues to increase in size through puberty after many of the other bones of the skull have ceased to grow. To the latter phenomenon the increased size and more pronounced clinical features of osteomas in these regions may be attributable.

Hyperostoses of rounded or irregular rather resembling osteomas may project from the inner table of the skull in the anterior portion of the calvarium. The frontal and parietal bones are usually involved diffusely. It is believed that the condition is more frequent in women than in men and is a compensation for atrophy of the beals. It is usually found only at autopsy in adults. The compact or spongy new bone projects inwardly from the inner table without any evidence of change in the outer table. Microscopically the new bone formation is similar to that in the spongy and eburnated osteomas. In the 3 reviewed cases of osteochondroma the tumor involved the skull in the region of the occiput. Two of the patients were adults and 1 was fifteen years of age. All 3 patients have remained well for more than five years, although in the case of 1 of them the lesion was interpreted from the roentgenogram as probably malignant and in the case of another a diagnosis of chondrosarcoma was made from the sections. Since the basioccipital bone is preferred in cartilage, osteochondromas of this region do not differ from those of the long bones.

Angiomas of bone, which may be either of the cavernous or the capillary type, are found more often in the skull or spine than in the long bones. Of 11 angiomas of bone recorded at the Johns Hopkins Hospital, 5 involved the skull. Two produced a cyst like expansion of both tables, but little or no apparent increase in the size of the lesion as observed over a period of years. In 1 case a congenital angioma was removed from the scalp and skull of a girl seventeen months old. The inner table of the skull was intact.

Giant-cell tumors are usually confined to the intracartilaginous bones or the osseous bones to the tendon sheaths derived from fibrocartilage. In the skull, therefore they should be restricted to the regions which develop from the chondrocranium. This is borne out by the 4 giant cell tumors of the skull in the series reviewed. Two of these presented in the temporal bones arising from the spheno-occipital bone occurred in the mastoid region and involved the auditory meatus and 2 developed in the occipital region. The ages of the patients at the time of the

initial examination were fourteen, forty-two, fifty-two, and seventy years. Although in 3 of the 4 cases a recurrence developed after excision, none of the patients died of tumor. In the case of the youngest patient excision of the lesion in the temporal fossa resulted in cure, the patient being reported well twenty years later. The tumor in the body of the sphenoid bone occurring in a white woman aged fifty-two years apparently caused hemiplegia four years after the operation. The patient is still living with spastic paralysis nine years later. The tumor in the mastoid region invaded the cranial cavity and at the third operation a portion was removed from the brain substance. However, the patient is free from symptoms five years later. Roentgenographically, giant-cell tumors of the skull produce a sharply demarcated area of bone destruction. Microscopically, they do not differ from giant-cell tumors of the long bones.

Following the discovery of a mass overlying a membranous bone in young adults, isolated defects in the cranial bones may be observed in roentgenograms of the skulls. There may be a history of trauma or infection, or the mass may date from early childhood. The lesions are practically asymptomatic. Such defects are often classed as bone cysts, and even after microscopic examination of the cyst wall and contents are diagnosed as xanthomas or cholesteatomas. Cholesteatomas involving the diploe are less common than cholesteatomas in the leptomeninges. They produce clearly demarcated areas of bone resorption which may be multilocular, eroding the inner table and thinning the outer table. The margin of the growth has a wavy or lobulated outline. The lesions are most commonly found in the temporal bone, but Cushing collected 8 cases, including a case of his own, of epidermal cysts of the diploe, in 3 of which the cysts were in the frontal bone, in 2 in the parietal bone, and in 3 in the occipital bone. On microscopic examination the cysts are seen to be contained within a fibrous and epithelial wall under a thin external table of bone with a few adherent plaques representing the remains of the internal table. The cyst contents may be rich in cholesterol crystals. The epithelial lining shows 5 or more rows of transitional epithelium resting upon a wall of vascular connective tissue. The tumors apparently arise from epithelial implants carried into the bone during embryonic development.

Typical osteomyelitis of the cranial bones with irregular new bone production, bone destruction, and small rounded sequestra is easily recognized in the roentgenogram. Such lesions are usually secondary to infections of the scalp, sinusitis, mastoiditis, or brain abscess. Syphilitic osteitis is not uncommon in the frontal and parietal bones. However, its confusion with primary tumors of the skull may be occasioned by solitary defects of inflammatory origin. Such areas of bone erosion were observed in 12 of the reviewed cases several weeks after the occurrence of laryngitis, salpingitis, phlebitis, or septicemia. A palpable fluctuant tumor may be

found overlying the osseous defect, and aspiration or incision yields fluid mixed with granulation tissue or granulation tissue alone. Microscopic examination fails to reveal an epithelial lining. The granulation tissue shows plasma cells, giant cells, lipid-laden phagocytes, and other wandering cells. Because of involvement of the diploe, the tissue may be quite vascular. Such granulation tissue is non-specific and, although sometimes interpreted as xanthoma or Schuller-Christian disease, osteitis fibrosa, or giant-cell tumor, it is the result of an infection similar to Brodie's abscess of the long bones. Defects without an epithelial lining and containing granulation tissue intermingled with blood and blood pigment may result from hemorrhage following trauma. The defect is surrounded by thin sclerotic bone, both tables of the skull being intact.

Sarcoma primary in the cranial bones is rare. Of a series of more than 500 cases of primary bone sarcoma, the upper and lower jaw were involved in 26, but the cranial bones in only 12. With 1 exception, the patients with cranial involvement were children or young adults. In practically all of the cases the tumor occurred in the vault of the skull, in the region of the parietal bone, sometimes at its junction with the occipital or temporal bone. Eight of the 12 neoplasms were varieties of osteogenic sarcoma, 1 was a fibrosarcoma apparently arising from the outer layers of the periosteum, and 3 were Ewing sarcomas.

Osteogenic sarcoma of the skull may be of the sclerosing or chondrosarcoma type. The discovery of the growth may be preceded by headaches. The neoplasm increases in size rapidly, but in general its duration prior to examination is longer in the skull than in other regions. All forms of osteogenic sarcoma in the reviewed cases showed a tendency to destroy the tables of the skull as well as to produce a periosteal reaction and invade the overlying soft parts. All but 1 of the patients died of metastases rather than of intracranial extension. The roentgen diagnosis is based upon bone destruction in the tables and diploe, the periosteal reaction in the adjacent areas, and, in the late stages, extension of the tumor into the soft parts. In some instances the nature of the lesion can be determined only by biopsy. In the reviewed cases, neither excision nor irradiation proved beneficial.

A typical chondrosarcoma involving the base of the skull was operated upon, but terminated fatally. The tumor was shiny and lobulated, invading the bone but not the brain substances.

Of the 3 Ewing sarcomas in the reviewed cases, 2 involved the mastoid process and 1 was primary in the frontal bone. Two of the patients were children and 1 was an adult twenty-two years of age. The 2 tumors in the mastoid region were excised, and, so far as could be determined, both patients died of recurrence rather than metastases. The tumor which involved the frontal bone destroyed practically the entire anterior half of the vault. The upper ribs, clavicle, and left tibia were also involved.

In this case. Despite the immense size of the cranial tumor it is possible that the lesion of the skull was a metastasis from a primary focus in the tibia.

Chordoma is a rare malignant neoplasm found at either extreme of the spinal axis. It is generally believed to originate from embryonic remnants of the notochord. The cranial chordomas are most common at the spheno-occipital synchondrosis or the chrus blumenbachii behind the sella turcica. They may destroy bone and produce symptoms of dyspneumia and intracranial pressure. In only rare instances is the tumor encapsulated and found totally within the bone. Usually it extends to the soft parts, both intracranially and extracranially. In the 1 case in the series reviewed the tumor developed in a male adult with signs of intracranial pressure following an injury to the back of the head. It invaded the base of the occipital bone and had intracranial and extracranial extensions. The tumor cells were variable in size, with the usual vacuolated cells and so called physaliphorous nuclei. Such tumors are locally invasive and tend to recur following removal. In rare instances metastases occur. There is nothing characteristic in the bony erosion produced, and the diagnosis is made most frequently at autopsy. MANUEL E. LICHENSTEIN, M.D.

EYE

Duggart, J. H.: Fuchs Epithelial Dystrophy: Remarks on Two Cases. *Proc Roy Soc Med Lond* 1936, 29, 30.

In the two cases of Fuchs epithelial dystrophy reported by the authors the outstanding characteristics were edema of the corneal epithelium, partial loss of the endothelium or its replacement by a granular structure, loss of sensibility of the cornea and the absence of a history of injury.

The subjects of this dystrophy are elderly and the condition simulates the glaucomatous cornea.

Fuchs described the condition in 1902. He suggested that a lesion of the endothelium might be responsible for it. This theory has since been proved to be correct.

Treatment has been of no avail. As the disease resembles conditions due to vitamin deficiency the use of cod liver oil has been suggested.

VIRGIN WESCOTT, M.D.

Strumlin, M. M., and Scarlett, H. W.: The Effect of Bacterial Lysate on Staphylococcal Keratoconjunctivitis in Rabbits. *Arch Ophth* 1936, 1, 47.

Successful treatment of several patients with chronic staphylococcal blepharconjunctivitis of long duration by means of an autogenous bacterial lysate in an ointment of hydrous wool fat and petrolatum suggested animal experimentation with suitable controls. Staphylococcal keratoconjunctivitis was produced in sixty-two anesthetized rabbits by the intra-corneal injection of a culture of a hemolytic strain of staphylococcus aureus obtained from a recent

hordeolum in one of the successfully treated clinical cases. The effect of the following substances was studied in nine thoroughly controlled series: (1) bacterial lysate containing active lysin (bacteriophage); (2) heated bacterial lysate not containing active lysin; (3) bacterial filtrate; (4) nutrient broth; (5) plain ointment of hydrous wool fat and petrolatum used as a base for all substances; and (6) atropine.

It was found that the bacterial lysate, the heated bacterial lysate, and the bacterial filtrate had almost the same effect, all causing rapid and complete healing of the ocular lesions. The plain broth had a slight effect, but the plain ointment resulted in more severe ocular lesions with more serious permanent damage than was noted in the rabbits treated with the other substances.

The authors conclude that the action of the bacterial lysate is due, not to the action of the lysin principle (bacteriophage), but to the dissolved bacterial proteins, probably through a process of local absorption followed by local and general immunity. WILLIAM A. MANN, JR., M.D.

Beilows, J.: Biochemistry of the Lens. V. The Cerebral Acid Content of the Blood and Urine of Subjects with Senile Cataract. *Arch Ophth* 1936, 15, 78.

A comparison of the cerebrospinal acid content of the blood plasma of persons with normal eyes and persons with cataract showed that the latter have a distinctly lower concentration than the former. The average value for twenty persons with cataract was 0.603 mgm per 100 c. cm. as compared with the normal of 1.03 mgm.

In the cases of persons with cataractous eyes a larger quantity of Vitamin C is required to cause an increase in the plasma content than in the cases of persons with normal eyes. A diminution of cerebrospinal acid occurs in the aqueous and lens of cataractous eyes. The decrease of this substance in the blood suggests that the decrease in the aqueous and lens precedes rather than follows the development of opacities.

These findings suggest the desirability of observing the results of the administration of Vitamin C to persons with incipient cataract.

WILLIAM A. MANN, JR., M.D.

EAR

Kirsch, H.: Petroctitis: A Review of Recent Work. *Proc Roy Soc Med Lond* 1936, 29, 263.

Kirsch states that in all cases in which extensive pneumatization of the mastoid is found at operation roentgenography of the petrous apex should be carried out.

The occurrence of "pain behind the ear" in the presence of suppuration of the middle ear should be considered evidence of petrositis.

Paralysis of the sixth nerve is not an indication for a petrous operation, but absence of paralysis of the sixth nerve does not prove absence of petrositis.

Operation is indicated when (1) meningeal signs (headache, torpidity, irritability, neck rigidity, vomiting) develop and increase, (2) roentgen evidence shows an increase of petrous disease, and (3) the Kopetzky latent period appears with a decrease in the discharge from the middle ear.

Petrositis may occur without pain behind the eye and may result in meningitis. The diagnosis is extremely difficult.

JAMES C BRASWELL, M D

Watkins-Thomas, F W. The Treatment of Petrositis. *Proc Roy Soc Med, Lond*, 1936, 29 267

The author states that in the great majority of cases, petrositis may be cured by an adequate mastoid operation with systematic extirpation of all discoverable cells. It is rarely necessary to perform a radical operation. Still more rarely is it necessary to carry out a deliberate exploration of the petrous pyramid.

JAMES C BRASWELL, M D

Wilson, J G, and Anson, B J. Histological Changes in the Temporal Bone in Osteitis Deformans (Paget's Disease). *Arch Otolaryngol*, 1936, 23 57

The authors state that the progress and the result of Paget's disease are essentially the same in the diploic portion of the petrous temporal bone as in any long bone or in the skull generally. However, the exceedingly compact cochlear part must present some definite resistance to the progress of the destructive forces. It is suggested that the presence of intrachondrial bone, found elsewhere to be a very stable tissue, accounts in part at least for this lack of progress. Observations now in progress on specimens of bone involved by other diseases must be extended to determine if this opinion is warranted.

JAMES C BRASWELL M D

NOSE AND SINUSES

Thomson, Sir St C. The Defenses of the Air Passages. *J Laryngol & Otol*, 1936, 51 1

The first line of defense of the air passages is formed by the mucus and the cilia. The mucus acts as a protective covering and a medium in which the cilia can function.

The cilia move with a fanning or lashing motion and are capable of reverse action. The direction of currents are always toward the orifice of the tube. They are guarding. They react to trauma and temperature changes. Cold inhibits and heat stimulates their activity, and pus does not seem to retard their action.

Certain drugs, when used in isotonic solution, are stimulating, whereas drugs that cause a precipitate slow up the efficiency of ciliary movement. The effect of the latter, however, is only temporary. Cilia will live outside the body, and when ciliated epithelium is removed it may regenerate in from three to nine months.

The second line of defense of the air passages is the submucosal layer with its influx of phagocytic

histiocytes. Another factor of importance is the ability of the stomach to destroy streptococci. In pathological conditions these defenses are reinforced by antitoxins and their antibodies, opsonins, phagocytosis, and bacteriolysins.

JOHN F DELPH, M D

MOUTH

Ducuing, J, and Ducuing, L. Malignant Tumors of the Base of the Tongue (Les tumeurs malignes de la base de la langue). *Lyon chir*, 1935, 32 641

The problem of cancer of the base of the tongue is dominated by the localization of the tumor, the anatomy of the lymphatic system, and the technique of irradiation.

The localization of the tumor on different parts of the tongue presents different therapeutic problems. Interest in this division of areas was aroused by the advent of various therapeutic measures. Knowledge of the lymphatic system of the upper aero-alimentary system has been greatly increased by the studies of Rouviere. Coutard has contributed precise methods for the application of irradiation therapy to these cases.

Malignant tumors of the base of the tongue are essentially cancers of the pharynx. Usually diagnosed late because of the absence of early symptoms they are generally found accompanied by submaxillary, carotid, and retropharyngeal adenopathies. Irradiation is a more logical method of treatment than surgery as it permits simultaneous treatment of the initial lesion and all the adenopathies. In some cases only palliation may be obtained. In others, survival may result. Supplemented by other methods, radontherapy, a delicate and onerous procedure, may effect a cure, as in five cases cited.

KENNETH W THOMPSON, M D

NECK

Lériché, M R. Late Results of Operation for Cervical Rib. An Analysis of the Varied Mechanism of Vascular Complications Caused by Cervical Rib (Quelques résultats éloignés d'opération pour côte cervicale. Analyse du mécanisme varié des accidents vasculaires causés par les côtes cervicales). *Bull et mémoires Soc rat de chir*, 1935, 61 1292

The author has operated upon nine patients for symptoms due to cervical rib. From his observations he concludes that cervical rib may produce arterial obliterations at a distance, and that these may be prevented by removal of the rib and sympathectomy. The obliterations may be located by arteriography. In some cases removal of the cervical rib alone is sufficient to relieve the symptoms.

Although cervical rib is a congenital condition, it may not cause symptoms until late in life. If the rib is short, the chief disturbances occur in the brachial plexus. These consist of more or less definitely localized pain and atrophy of the muscles

of the hand. In many cases removal of the rib will relieve the pain and correct the atrophy. If the cervical rib is long, the disturbances are usually of a vascular type. A cylindrical dilatation of the subclavian artery or obliteration of the artery may result. As a rule such an obliteration is at a distance from the rib, in which case it can be located only by arteriography. Mere absence of pulsation of the humeral artery may be due to vasoconstriction, the blood may return in a continuous wave without rhythmic pulsation. In such cases arteriotomy has a very favorable effect. The site of the obliteration must be located as it is in this area which must be resected. Experiments have shown that, after producing distant functional disturbances for a time an arterial obliteration finally causes definite anatomical lesions in the subjacent arterial segment. Arteriotomy may prevent the development of arteritis with subsequent secondary obliteration.

Clinically most of the vascular disturbances produced by cervical rib are of a vasomotor type. The author believes that in all cases of unilateral Raynaud syndrome a careful examination for the presence of a cervical rib should be made. If the artery is obliterated muscular atrophy and intermittent claudication of the arm and hand supervene on exertion. If the obliteration is at a high level, the claudication is manifested by inability to maintain the arm in the raised position for any considerable length of time. Contact of the rib with the artery is not necessary for production of the Raynaud syndrome. In some cases removal of the rib is followed by full recovery. Poor results are due to secondary arterial dystrophies at a distance. In some cases the arterial disease produced by the cervical rib persists after removal of the rib. In the absence of obliteration in such cases a perihumeral sympathectomy may give good results. If perihumeral sympathectomy fails, stethoctomy may be indicated. In the presence of obliteration the treatment of choice is arteriotomy of the obliterated segment after its localization by arteriography.

Successful results were obtained in seven of the nine cases operated upon by the author. One of the cases failing to respond was that of a patient who suffered from non-vascular nervous phenomena due to prolonged irritation of the branches of the plexus. In the other, the operation had no effect on the severe atrophy of the hand.

ELIZABETH SCHWACHE MOORE

Journ. V: Varices of the Neck (Le varici del collo)
Arch. ital. di chir. 1935, 41

Of the so-called hemangioma cysts of the neck, the author discusses especially those due to phlebectases. He reports two cases of varices of the anterior jugular vein—one of congenital varices in a child of eleven years and the other of acquired varices in a woman of forty-four years. He discusses the etiology, pathogenesis, pathological anatomy symptoms,

treatment, and prognosis of this condition. He emphasizes especially congenital and acquired lesions of the veins of the neck which, because of the structure of their walls or anatomical conditions of the adjacent veins, are particularly exposed to occasional pressure arising in the region of the brachiocephalic trunks.

DAVID J. INGRAM, M.D.

Myerson, M. C.: Tuberculosis of the Larynx Requiring Tracheotomy. *Arch. Otolaryngol.* 1936, 23

The author favors tracheotomy for cases of tuberculosis of the larynx in which laryngeal obstruction develops. He distinguishes 2 types of tuberculosis of the larynx: the productive and the destructive. The destructive type is characterized by ulceration, whereas the productive type consists of infiltration of the perichondrial and muscular structures. The latter results in laryngeal obstruction by involvement of the arytenoid cartilages and extension to the crico-arytenoid joint, causing ankylosis which fixes the cord.

It is an erroneous impression that laryngeal tuberculosis complicating pulmonary tuberculosis is incurable. If the pulmonary condition shows a tendency to heal, the laryngeal condition may be expected to heal also. The majority of the patients die at least be kept comfortable by treatment. Not all patients with laryngeal involvement have hopeless pulmonary involvement. Tracheotomy may be of benefit indefinitely or for a considerable period of time.

Many causes of tuberculous laryngeal obstruction, such as tuberculous and papillomatous masses, can be removed by endolaryngeal instrumentation. Edematous swellings may be reduced by the use of the electrocautery. This is the method of choice, but a benefit of no avial tracheotomy should be done.

Of a series of 738 cases of pulmonary tuberculosis, the author found some form of laryngeal involvement in 11 per cent. Of the latter tracheotomy for tuberculous involvement was necessary in 9. All cases of laryngeal tuberculosis with partial obstruction should be watched, especially when there is infiltration of the arytenoid cartilages, as sufficient fixation of the crico-arytenoid joint to cause severe dyspnea may develop at any time.

Although tracheotomy does not place the larynx at complete rest it is frequently followed by marked improvement in the lesion. For the patient who is seriously ill it affords relief from unnecessary suffering during the remaining days of life. The objection that it hinders the expulsion of mucus and crudes is valid in some cases but not in others, especially those of patients who are not debilitated. The belief that all tracheotomy wounds become infected with the specific organism is not borne out by the author's experience as only 3 of 9 wounds in his cases became so infected.

MAURICE P. MINTEN, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS, CRANIAL NERVES

Freeman, W., Schoenfeld, H. H., and Moore, C.
Ventriculography with Colloidal Thorium Dioxide *J Am M Ass*, 1936, 106 96

In two years' use of colloidal thorium dioxide the advantages seemed to outweigh the dangers. Colloidal thorium dioxide is freely miscible with the ventricular fluid, it is of high specific gravity and radiopacity, it passes readily to the subarachnoid space when not obstructed, it is eliminated from the cranial cavity within four hours, and the pressure relationships within the cranial cavity are not disturbed by removal of the liquid cushion on which the brain rests.

The danger resulting from the storage of a radioactive material in the body has not been fully determined, but even since the use of the comparatively large doses employed in visualization of the liver and spleen there have been no reports of carcinogenic activity. The greatest danger seems to lie in the inflammatory effects in cases in which the ventricular system is obstructed with resulting retention of the thorium after dispersal of its protective colloid. No disastrous results have been noted from such retention thus far in the authors' cases of ventriculography, but a few deaths have been reported following injection into the basal cistern.

The authors have employed this technique in twenty cases, with two deaths and two severe reactions. Of the two deaths, one was that of a patient already moribund at the time of operation. The recesses of the ventricular system are visualized in a manner not possible with air injections, and the patients complain of less discomfort than when air is used. The possible late effects of the retained thorium dioxide remain to be determined.

EDWARD S. PLATT, M.D.

Jirasek, A. Experiences in Surgery of the Brain and Spinal Cord (Erfahrungen aus der Chirurgie des Gehirns und Rückenmarkes) *Med. Pregl*, 1935, 10 101

Jirasek gives a brief historical review of the development of brain surgery. The fact that about 40 per cent of patients who would otherwise be lost can be saved by operation speaks in favor of surgery in spite of its still high mortality. The author is opposed to the separation of neurosurgery from general surgery, but demands that the surgeon who practices neurosurgery shall be skilled in the diagnosis of brain and cord diseases. Ventriculography is a dangerous procedure and should be used only in the presence of the most definite indications. As early as 1925 the author proposed the use of ordinary air

for filling of the ventricles. In the cases of patients with very high intracranial pressure of long standing, operation is especially dangerous. In such cases every operation should be preceded by either a physical decompression (lumbar or ventricular puncture) or a chemical decompression (intravenous injection of hypertonic salt solution). Most of the patients still come to operation too late. Jirasek operates under local anesthesia with the patient sitting. During the operation the general condition, pulse, respiration, and blood pressure are carefully controlled. When conditions demand, the operation is stopped promptly. The author advocates operating in stages. He operates slowly and cautiously with careful consideration of the condition of the patient. The brain surgeon must be exceptionally self-disciplined and must have great patience. Piece-by-piece, slow removal of a tumor is tolerated best. The author discusses the accessibility of tumors situated on the surface of the brain and their operability on the basis of their pathologicohistological character. Tumors of the hypophysis are approached by the transfrontal route. The cavity left after the removal of a large tumor or the resection of a cerebellar hemisphere is filled with sterile vaseline according to the suggestion of Kostlivy. In discussing intracerebral tumors Jirasek presents two roentgenograms to demonstrate the advantages of pneumocystography for exact orientation as to the site and extent of the cysts. In the case of circumscribed gliomas, which necessitate the resection of brain tissue, it must be considered whether the patient will not be more injured than helped by the operation. In all cases of inoperable tumor, decompressive trephination, which should always include splitting of the dura, is indicated. To prevent prolapse of the brain the author recommended circular craniotomy as long ago as 1925.

The postoperative course and postoperative treatment are also discussed. The formation of cerebrospinal fluid fistulas is not due to poor suturing, as assumed by Olivecrona. It is the result of an increase in the production or a disturbance of the circulation of the fluid in the ventricular system. Persistence of such a fistula means that the tumor has not been entirely removed.

Statistics as to the results of operation give only the operative mortality. They do not show the percentage of patients whose ability to work has been restored. Therefore the economic and social value of the operation cannot be estimated. In 39 cases operated upon by the author in the period from 1919 to 1926 the mortality was 69 per cent, and in 131 cases operated upon by him in the period from 1927 to date it was 44.2 per cent. The mortality in the entire series was therefore 50 per cent.

Among other surgical diseases, Jirasek discusses chronic subdural hematoma, the cause of which has not yet been proved. The diagnosis is usually not made but sometimes encephalography and ventriculography are of aid.

The only treatment to be considered is wide decompressive trephination. The author operated successfully in 3 cases. In true epilepsy he has seen very good results from subtemporal decompressive trephination even when no explanation could be found for the favorable effect. If a collection of fluid is discovered under the arachnoid, the arachnoid is incised in the entire circumference of the trephination opening. In Jackson's type with involvement of the right side the middle convolutions are fixed by adhesions. In 23 cases in which operation was performed there were no deaths and in only 1 did the patient's condition become worse. Operation is the last resort. The author rejects other operative methods of treatment.

With regard to his experiences in the operative treatment of intraspinal tumors Jirasek cites his report to the International Surgical Congress in 1932. Up to the present time he has operated on 59 tumors of the cerebrospinal canal with a mortality of 8.3 per cent.

He discusses the operative treatment of syringomyelia and arachnitis in greater detail. In 33 cases, to find the most suitable site for the opening in the Klippel-Feuillet chordotomy (the lower end of the spinal canal) the author used with great advantage endomyelography, a method worked out by him and Vitek. The communication between the syringomyelic cavities and the subarachnoid space is maintained by the insertion of a flap of dura. The dura itself is left open. In 30 cases operated on there were no deaths and in 19 cases there was considerable improvement.

Arachnitis spinalis adhesiva presents a new field to the surgeon. The author operated in 14 cases, 6 times on the belief that a tumor was present and 8 times with the correct diagnosis. The object of the operation is to decompress the spinal cord. The decompression is obtained by opening the pseudocyst, releasing the adhesions posteriorly and restoring the canalization above and below. In order to obtain the maximal decompression the dura is left unsutured. The results up to the present time are satisfactory.

(PILVERÉ) PIERRE AN. & CARP. TIR.

Alchansky P. I. Surgical Treatment of Involuntary Movements of the Extremities in Post-encephalitic Parkinsonism (Traitement chirurgical des mouvements involontaires des extrémités après la parakinésie post-encéphalique). *J. de chir.* 1934 44: 887.

The clinical manifestations of the postencephalitic state are very diverse but two principal syndromes can be distinguished: (1) the hypokinetic syndrome accompanied by extrapyramidal rigidity of muscles, and (2) the hyperkinetic syndrome with the devel-

opment of involuntary movements manifested by characteristic tremors.

A period as long as several years may elapse between the encephalitis and the onset of the parkinsonian syndrome. The symptoms become progressively worse as a rule but the patient's intelligence remains unimpaired.

As conservative treatment with atropine, atropine or stramonium gives poor results, numerous operative procedures have been devised to abolish the involuntary movements. Most of the latter are unsatisfactory for one reason or another. In the operation of Horsley for example, the involuntary movements are stopped only at the cost of a spastic paralysis.

This report considers the results in seventeen patients who were operated upon in the Neurosurgical Clinic at the "Institut central neurologique d'Etat, Leningrad." The operative procedure was that of Putnam, first described in the *Archives of Neurology and Psychiatry* in 1933. This consisted of division of von Monakow's bundle in the lateral columns of the spinal cord with simultaneous division of the anterior columns. In seven of the cases the operation was performed on the cervical cord, and in ten on the thoracic cord. The author presents illustrations of two chordotomies and a nerve that he has used. In three of the reported cases there was permanent improvement over an observation period of from eight to fourteen months. In five, the results were classified as more or less satisfactory but the period of observation has not extended beyond eight months. Alchansky concludes that the described method offers considerable hope in a disease hitherto considered almost incurable.

MARKS WILLIAM POOLE, M.D.

SPINAL CORD AND ITS COVERINGS

Alajouanine T., and Horsier T.: The Presence of Chromatophores in the Syringomyelic Cavity (*Sur la présence de chromatophores dans la cavité syringomyelique*). *Ann. d'hist. nat.* 1935, 1: 24.

In the central nervous system melanin is normally found in the locus niger in the locus caeruleus, and throughout the axis of the medulla, pons, and mesencephalon. It is found also in the chromatophores of the pia mater cells with long irregular processes containing melanin. These are distributed throughout the cord, but are most numerous around the blood vessels and posterior roots.

The physiological significance of the melanin has remained obscure. The authors report a case of syringomyelia which they think throws some light on the problem. In this case examination revealed a lateral fissure in the medulla and a central cavity which passed through the cervical, dorsal, and lumbar segments of the cord but was largest at the level of the sixth cervical segment. The wall of the syringomyelia cavity was lined by a layer of connective tissue. The vessels showed the usual changes of syringomyelia. The chromatophores were thick-

ened, and at certain points where the anterior commissure was destroyed by the process the pia mater had penetrated the nerve tissue and was continuous with the connective tissue lining the cavity. The chromatophores had proliferated in the pia mater along the whole cord but particularly at the places where the syringomyelia was most developed. At the sixth cervical segment the syringomyelia had destroyed the central region, all of the anterior and posterior commissures, and the greater part of the gray substance. It had extended to the periphery of the lateral cords and had left only a thickened and fibrous pia mater. At the level of this great destruction of the cord the chromatophores had not only proliferated to an extraordinary degree in the pia mater but had penetrated into the interior of the cord where they were exercising a very evident phagocytic action. Evidently the proliferation of the chromatophores was in direct relation to the intensity of the injury to the cord.

The authors conclude from this and a similar case which they report briefly that the multiplication of the chromatophore cells of the pia mater in diseases of the cord and meninges is a special defense reaction of the body.

AUDREY GOSS MORGAN, M D

SYMPATHETIC NERVES

Harris, R I The Role of Sympathectomy in the Treatment of Peripheral Vascular Disease
Brit J Surg, 1935, 23 414

Results obtained in the Toronto General Hospital by sympathectomy in the treatment of Raynaud's

disease, Buerger's disease, and peripheral arteriosclerosis are reviewed.

There were twenty-four cases of Buerger's disease. The operation consisted of lumbar sympathectomy in cases with involvement of the lower extremities and removal of the stellate ganglion in three cases with involvement of the upper extremities. Seventy-nine per cent of the total number of patients were greatly benefited by the operation. The author concludes that the pre-operative test with spinal anesthesia was a very accurate means of determining the cases which would be aided by sympathectomy.

Of the twelve cases of peripheral arteriosclerosis, a good result was obtained in five. In one, the immediate result was good, but amputation of the extremity became necessary later. In six cases the results were poor. In every case in which the result of the operation was good the pre operative test by spinal anaesthesia showed a sharp rise in skin temperature which was never less than 3 degrees C and usually higher. The average rise was 6.2 degrees C. In the cases in which the result of the operation was poor there was no rise.

The four cases of Raynaud's disease treated by sympathectomy were benefited. The author used the extraperitoneal approach advocated by Royle for removal of the lumbar sympathetic chain. A transverse incision was made from the umbilicus to the edge of the quadratus lumborum muscle.

The stellate ganglion was removed by the posterior approach advocated by Henry. The author approves of the recent technical modifications suggested by White.

ROBERT ZOLLINGER, M D

SURGERY OF THE THORAX

CHEST WALL AND BREAST

Dupuy de Frenelle: So-Called Benign Tumors of the Breast Sometimes Containing the Germ of Cancer (*Les tumeurs dites bénignes du sein contiennent parfois des germes de cancer*) *Bull et mém. Soc de chir de Par.*, 935, 27, 903.

Dupuy de Frenelle states that the incidence of cancer of the breast, one of the most frequent forms of cancer in women, can be reduced if the smallest chronic lesion—induration or nodule—in the breast is removed promptly and thoroughly. There is no clinical sign by which it is possible to determine whether or not such a lesion contains a germ of cancer. For cases in which the condition is apparently benign the author advocates an "esthetic" operation in which the breast is remodeled after removal of the involved tissue.

Adenomas of the breast, although small and encapsulated, may contain cancerous tissue and should be removed with a large section of the surrounding tissue. The latter may show microcysts which may be considered a precancerous condition. The sub-axillary route is used, the incision being made just in front of the axillary hair. A considerable portion of the breast is removed, with the lesion in its center and the remainder of the breast fixed to the border of the pectoralis major.

A chronic indurated lesion (chronic mastitis with induration) may contain cancerous tissue although it appears entirely benign grossly. A large resection with an axillary gland "pedicle" is indicated. After the resection the breast should be remodeled so that the nipple projects forward naturally and the base of the breast fixed to the tendons of the pectoralis major. In some cases the other breast is also remodeled. Sometimes half of the breast is resected with preservation of the nipple, the areola, and a small cone of tissue below the nipple to permit the remodeling esthetic operation to be done. The axillary glands should be removed in these cases as cancer tissue has been found in these glands in chronic mastitis which appeared entirely benign. On the other hand, the glandular enlargement has proved entirely benign in some cases in which cancer was suspected.

Cysts of the breast, although usually benign, may be malignant or contain cancer tissue. A large resection of the breast is indicated as there is usually a microcystic area surrounding the cyst which is susceptible to malignant degeneration. However an esthetic operation may be done by preserving the nipple and a small portion of the breast with a skin flap. In polycystic mastitis with much induration, total removal of the breast and the axillary glands is indicated.

In the discussion of this report the opinion is expressed by several surgeons that the so-called "esthetic" operation is not sufficiently radical if the lesion proves to be malignant, and in some cases is too radical if the lesion is entirely benign, especially in chronic mastitis.

BUIZARD and others suggested that a preferable method is immediate histological examination of the tumor after its removal *en bloc* before the completion of the operation, and complete removal of the breast if malignancy is found.

ALICE M. MYERS.

BORRIS, E. L., MCKEOP, M., BURNSTELL, V. and LOEB, L.: On the Relation Between the Incidence of Mammary Cancer and the Nature of the Sexual Cycle in Various Strains of Mice. *Am J Cancer*, 1934, 26, 54.

It is well known that in different strains of mice under the same environmental conditions the hereditary incidence of mammary cancer varies from 100 per cent to zero.

Previous researches showed that a second factor besides a hereditary tendency was necessary for the development of this lesion, namely, the action of ovarian (follicular) hormones. The longer the hormones acted on the mammary gland, the more frequent the development of the cancer and the earlier its appearance.

In this article the authors report research carried out to determine whether the various characteristics of the sexual cycle show any parallelism with the incidence of cancer in known strains.

It is known that tissue may vary in response to stimulation and if the nature of the sexual cycle varies the mammary gland will be stimulated for a longer or shorter time or more frequently in some strains than in others. Hence differences in hereditary tendency to cancer may be attributed to variations in the degree of internal stimulation in different strains of mice.

Ten strains of inbred mice with a varying known hereditary incidence of cancer were studied with regard to the following characteristics of the sexual cycle: the average duration of estrus, the total number of days of luteinization of the vaginal mucus in a given period, the average number of estrus cycles, and the regularity of the estrus cycles.

Though there was some variation in the estrus cycles with different diets, there was absolutely no parallelism between any of these features of the sexual cycle and the frequency of cancer. Therefore the hereditary tendency to acquire cancer is not due to the nature of the sexual cycle which distinguishes the strains from one another.

HARRY C. SALTSTEIN, M.D.

TRACHEA, LUNGS, AND PLEURA

Glertz Surgically Treated Cases of Foreign Bodies in the Lungs (Operierte Faelle von Lungenfremdloerpern) *Svensk Läkartidn*, 1925, p. 1109

In the first part of this article Glertz deals exclusively with the problem of ventilation. He refers repeatedly to his animal experiments on the rhythmic introduction of air into the lungs which date back to 1916.

He says that while, without question, thoracic surgery received a new impetus from Sauerbruch's differential pressure respiration, he believes that in many cases Sauerbruch's procedure is insufficient if not dangerous to life. By his own investigations carried out in the period from 1914 to 1916 it was shown that his own procedure and Sauerbruch's procedure are physiologically of equal value. Even though from the practical viewpoint the use of the increased pressure method might be regarded as preferable, it must be remembered that by no means has it eliminated all of the dangers of intrathoracic operations. When a bilateral wide-open defect must be produced in the chest wall the lungs will not continue to move with the movement of the wall. Even with the variable pressure respiration, pulmonary ventilation becomes so reduced that there is danger of suffocation. The author emphasizes especially that in a double pleurotomy danger to life is not eliminated by the differential pressure respiration. The Sauerbruch method does not definitely assure safety, even in unilateral pleurotomy as it does not afford sufficiently effective ventilation. The great danger of the variable pressure respiration lies in the fact that when there is the slightest suspicion of failure of pulmonary ventilation action must be taken at once. Moreover, there are deleterious effects on the lesser circulation—interference with the "physiological suction" of the peripheral blood into the right heart chamber as the result of compression of the pulmonary capillaries with a consequent rise in the pressure in the right heart and the pulmonary artery.

The author states that all of these dangers may be avoided by the use of the rhythmic air insufflation method recommended by him since 1916. This procedure is carried out with a positive-pressure apparatus modified from that of Lotsch, with an additional arrangement for producing rhythmic air insufflation. The most important feature is a completely airtight tracheal cannula. Glertz obtains this by surrounding the tracheal cannula invented by Kuhn and modified by the Swedish bronchoscopist, Frenckner, with a rubber balloon. The cannula is introduced by direct bronchoscopy. Because of the modern perfection of bronchoscopic instruments and the technical skill of modern bronchoscopists, surgeons are obliged to operate only in exceptional cases for the removal of foreign bodies from the lungs or the treatment of lung abscesses.

Glertz points out that there is a marked difference in the treatment of foreign bodies inhaled into the

lungs and those which have entered through penetrating wounds of the chest wall, such as bullets, broken-off knife blades, and aspirating needles. The former are nearly always followed by dangerous infections with purulent bronchitis and must be removed as early as possible. Very different is the behavior of foreign bodies penetrating into the lung from the exterior, which frequently become healed in without complications. In cases of such foreign bodies operation is not indicated unless there are threatening signs such as hemorrhage, secondary infections with abscess formation, gangrene, or fistula. It is in this group of cases that the experience of surgeons who took active part in the late war is of great value and operations performed by the trained hands of a Sauerbruch will usually be free from complications.

The author reports two of his own cases of inhaled foreign body. In one, the foreign body was extracted through an intercostal incision. The incision was then sutured and healing resulted. In the other, a wood splinter had been embedded in a lower pulmonary lobe for two years and had transformed the entire lobe into a system of pus-filled atelectatic-bronchiectatic cavities. The foreign body was extracted, but operations for empyema and bronchial fistula were necessary subsequently. Later it may be necessary to resect the entire lower lobe.

(GERLACH) J. DANIEL WILLEMS, M.D.

Freedman, E. Congenital Cysts of the Lungs
Am J Roentgenol, 1936, 35, 44

Congenital cysts of the lung occur much more frequently than is generally supposed. In 1925 Koontz collected 108 cases. Between 1925 and 1930 Croswell and King found 12 more reported in the American literature. Many cases have doubtless been overlooked because of misinterpretation of the roentgen findings. In the cases of adults a diagnosis of ulcerative tuberculosis is often made, whereas in those of children, in which the lesion is usually a solitary cyst, the usual diagnosis is pneumothorax or emphysema secondary to a non-opaque foreign body.

According to Grawitz, the lesion is of 2 types: (1) bronchiectasis universalis, in which a whole or part of one lobe or even a whole lung shows various degrees of cystic dilatation, and (2) bronchiectasis telangiectatica, characterized by a partial or circumscribed enlargement of a bronchus section which does or does not communicate with the rest of the bronchi. The former is usually diffuse or multiple, whereas the latter is usually solitary and is known as an air cyst. Histologically, the cyst corresponds to the structure of the bronchiole. The thin-walled cysts are lined by cuboidal, cylindrical, or ciliated epithelium. The large, thick-walled cysts show the structure of the larger bronchi, being lined by a multiple layered cylindrical epithelium which may be ciliated. Most of the cysts contain air, but at times may contain also mucus or cellular material.

Of the numerous theories advanced with regard to the etiology of such cysts, the majority ascribe them

to disturbances of the development of the bronchi. There are no typical clinical symptoms. Many cases present no clinical manifestations. In others there is a history of repeated attacks of bronchitis associated with cough and expectoration. In the cases of children, in whom the solitary giant cysts are found, there may be alarming attacks of dyspnea and cyanosis and sometimes shock. Five cases are reported.

The X-ray appearance of the cysts is quite definite. The smaller solitary cysts are manifested by ill-defined shadows of increased density with a clear cut outline and no evidence of a peripheral inflammatory reaction. The walls of the giant cysts are less clearly defined and frequently cannot be made out, their appearance being that of a pressure pneumothorax with displacement of the heart and trachea to the other side. In some giant cysts normal lung tissue can be made out in peripheral areas. The markings can be recognized, but the wall of the cyst, remaining invisible, suggests an increased air content in the lung with displacement of the heart and the trachea which may lead to the incorrect diagnosis of obstructive emphysema due to a non-opaque foreign body. Multilocular cysts show a honeycombed network with larger and smaller cysts which usually contain air and at times show a fluid level. If there is no inflammatory reaction, there is no contraction of the lung. The condition is often mistaken for spontaneous pneumothorax. However in the latter there is usually an acute, painful onset and the outlines of the collapsed lung are distinguishable, whereas in the large air cysts no demarcation of the lung can be made out. Moreover pneumothorax never remains stationary the air being gradually absorbed whereas in the congenital cyst the air remains. Also pneumothorax is more likely to contain fluid. Multilocular air cysts are likely to be confused with obstructive tuberculosis. In the latter, however there is usually a considerable amount of inflammatory reaction around the diseased area with contraction of the fibrous tissue. Differentiation from bronchiectasis is not difficult provided the cavities are not infected.

Ordinarily no treatment is necessary. Conservative is indicated as long as there are no symptoms. As tapping of a giant air cyst is sometimes followed by shock and death, it should not be done unless the cyst interferes with respiration.

ALTON OGDEN, M.D.

Bergent, Durnall, Kourilsky and Patakenis: Isolated and Suppurative Congenital Cysts of the Lung (*Les kistes congénitales isolés et suppurés du poumon*). *Arch. néch. de l'app. respir.* 1935, 6: 142.

The authors report in detail three cases of congenital suppurative cysts of the lung. In the literature there have been described large single air cysts producing the picture of partial pneumothorax, small multiple cysts usually in juxtaposition to bronchial dilatation, and small isolated cavities. The large

cysts in the adult usually cause dyspnea. In children the dyspnea is frequently of a paroxysmal type. Occasionally following an attack of dyspnea the cyst may become definitely silent and latent. The small multiple cysts associated or not with bronchiectases are generally found in patients with a history of chronic recurrent pulmonary infection suggesting bronchial dilatation. The cysts in the three cases reported by the authors were of a third type, namely single, isolated latent cysts manifested by pulmonary suppuration and producing a fluid level picture. The clinical picture of such cysts is that of an encysted pleural suppuration or pyothorax suppuration. The mistake in diagnosis is not usually recognized before operation or autopsy. Although very few cases of this type have been reported, the authors believe that many cases in which a diagnosis of abscess of the lung was made were in reality cases of suppuration of congenital cysts, and that in some such cases operation has been performed under the diagnosis of purulent pleurisy.

The clinical symptoms of a large congenital suppurative cyst of the lung are those of pulmonary suppuration in general. In contradistinction to congenital bronchiectases, which become infected only after repeated rhinopharyngeal and respiratory episodes, these large cysts seem prone to become infected easily and rapidly. In all three of the authors' cases and in several of the cases reported in the literature the suppuration was preceded by hemoptysis. This sign is probably due to an intermittent inflammatory condition of the cystic cavity which has not yet gone on to suppuration. Vascular malformations within the cyst may also play a part in its occurrence. Paroxysmal attacks of dyspnea have been reported. The only distinctive signs found in the condition as compared with ordinary pulmonary suppuration are the roentgenographic findings. The hydro-aeric picture is usually ovoid and, even in size. It has a perfectly smooth regular outline, as though it were drawn with a compass. There is no peripheral condensation. If the cyst is small, the picture may resemble that of an abscess, and if it is large that of an encysted pleurisy. However the extremely smooth and regular contour and the unusual constancy of the picture during the course of the disease are of aid in the differential diagnosis.

The cysts remain latent for many years, the only symptoms being slight periodic hemoptyses of red blood. Infection may occur in childhood, adolescence, or adult life as the result of ordinary bronchopulmonary infection, with consequent purulent suppuration and occasionally gangrene as the primary clinical manifestation.

At operation the wall of the cyst is found smooth, slightly puckered, bright red, rigid, and adherent, and does not collapse on drainage. Other congenital malformations may or may not be present. The cysts are usually single. Microscopic examination seems to show a hyperplasia of the mucosal cells of the bronchial tissues and of the blood vessels, each factor may explain the hemoptyses. The treatment rec-

ommended is drainage in two stages. Extirpation is usually impossible and always dangerous. Eradication of the cyst by thoracoplasty would be very difficult.

ELIZABETH SCHANCHE MOORE

Graham, E. A. Primary Carcinoma of the Lung or Bronchus. *Ann Surg*, 1936, 103, 2.

The treatment of primary carcinoma of the lung or bronchus represents one of the remarkable advances made in medicine since Lister's time. Considered from the standpoint of diagnosis and treatment, the condition was a curiosity, found rarely at the autopsy table. Now, forty years later, such lesions represent from 5 to 10 per cent of all carcinomas and from 75 to 80 per cent may be diagnosed with certainty. This change has been due to the use of the roentgen rays and bronchoscopy and to a better understanding by pathologists of the consequences of small obstructive tumors of the bronchi.

It is more important to become interested in the evidence suggesting the presence of cancer than in the evidence of impending death. The early symptoms of pulmonary or bronchial cancer are cough, chest pain or discomfort, dyspnea, sputum hemoptysis, and "chest colds." Symptoms relating to bronchial obstruction ensue later. The fact that the obstruction does not necessarily remain complete explains the intermittency of symptoms whether treatment is given or not. Usually the roentgenogram does not reveal the tumor, but an area of atelectasis is apparent. The final diagnosis is determined by bronchoscopy.

Up to the present time the evidence regarding effective treatment by either radium or the roentgen ray has not been very convincing. Most reports from radiotherapeutists are unsatisfactory because of the scantiness of pathological reports. In some cases an insufficient period of time has elapsed.

Wide surgical removal offers the best chance of recovery. Lobectomy will probably be found not sufficiently radical. Total removal of the lung has the advantage of permitting the removal of enlarged mediastinal nodes and a closer approach to the trachea. Reported cases and the author's personal experience indicate that total pneumonectomy is technically possible and practical.

It is of the greatest importance that educational campaigns be conducted to inform the general medical profession regarding the principal signs and symptoms suggestive of the disease. The possible presence of a pulmonary or bronchial carcinoma must always be considered in the cases of patients with an unexplained cough.

RICHARD H. OVERHOLT, M.D.

Marcell, G. E., and Crawford, B. L. Primary Carcinoma of the Lung Occurring in the Apex. *Am J Cancer*, 1936, 26, 137.

Because of their location and their characteristic symptoms and signs, neoplasms occurring in the extreme apex of the chest were at first thought to be a new pathological entity and were called "superior pulmonary sulcus tumors." As the result of further

clinical and histological study it is now generally believed that they belong to the classification of primary cancers of the lung. The case reported by the authors bears out this theory.

The patient was a white American salesman forty-seven years of age who had suffered from increasing pain in the region of the left shoulder and left arm, progressive weakness, loss of weight, and hoarseness for about nine months. Physical examination revealed emaciation and a few shotty glands on both sides of the neck. The pupils were equal and reacted to light and accommodation, but the left pupil was slightly irregular. The trachea was deviated to the right without a tug. Anteriorly, the percussion note was dull down to the second interspace on the left side. Posteriorly, it was flat in the suprascapular fossa and dull down to the midscapular region. In these regions the breath sounds were greatly diminished. The left arm was tender. All reflexes were normal. Examination of the rest of the body revealed nothing of significance. Roentgenograms were reported as showing an area of markedly increased density in the left apex and superior mediastinum shifting of the trachea to the right, destruction of the second rib on the left side and of the corresponding transverse process, and involvement of the third rib. These findings were thought to be due to an extrapulmonary tumor resembling a neurogenic neoplasma.

After negative bronchoscopic examination and a fruitless search for another possible site of origin, X-ray therapy was decided upon. A course of fifteen daily treatments resulted in temporary remission of the pain and improvement in the appetite and strength. However, after about a month the pain returned, became progressively worse, and was not relieved by a second course of X-ray therapy. The complaints at this time were severe pain in the left shoulder and left scapula and down the left arm, which was most marked at night, hoarseness, numbness of the left hand, especially on the ulnar side, loss of weight, and weakness. The left shoulder drooped, and the gait was rigid. The left arm was carried close to the left side. There was no abnormality of either eye. Above and below the left clavicle slight bulging was noted. There was tenderness in the left interscapular space, and movement of the arm caused increased pain in that region and down the arm. The percussion note was dull over the left apex, but no definite outline of a mass could be determined.

Further treatment was palliative. The disease progressed rapidly to a fatal termination thirteen and a half months after the onset of the symptoms. At autopsy, which was complete except for the skull, a primary adenocarcinoma of the left upper pulmonary lobe with metastases in the chest wall, lymph nodes, and suprarenal glands was found. The authors present photographs and photomicrographs of the specimen.

In the discussion of this case they state that the symptoms, physical signs, and X-ray findings in

reported cases of carcinoma of the apex of the lung are so similar to those mentioned by Pancoast in his description of so-called superior pulmonary sulcus tumors as to warrant the conclusion that the two conditions are identical. They believe that the described syndrome is typical, not of a new clinical entity but of a well-known neoplasm occurring in an unusual location and presenting the invasive characteristics of all such tumors.

JAY ELIOTTE TREMBLAY, M D

Overholt, R. H.: Primary Carcinoma of the Lung: Early Diagnosis and Treatment by Pneumomectomy. *New England J. Med.*, 1935, 54, 93

It has now been demonstrated that one lobe or an entire lung on one side can be removed successfully. Surgery therefore has something to offer persons with primary carcinoma of the lung providing the diagnosis is made while the growth is still confined to one lung.

The author reports a clinical study of twenty-three cases of proved primary carcinoma of the lung. The status of the patients not operated upon was compared with that of the patients treated surgically. Metastatic lesions were found on clinical examination in six patients. Two other patients were rejected for operation on account of their poor general condition. The remaining eighteen were subjected to thoracic exploration. Mediastinal infiltration was found in seven. In two lobectomy and in six, pneumomectomy was performed. There were three operative fatalities. At the time of the report three of the patients treated by pneumomectomy were living. Two were in good health twenty and fourteen months respectively after the operation.

Clinical studies suggested that the location of the growth and its relation to the stem bronchus were more responsible for the clinical picture than was the histological structure of the tumor. The cases could be divided into two groups—those of the bronchial or hilar type and those of the pneumonic or peripheral type.

Nineteen of the twenty-three lesions originated in a stem bronchus. In this group early roentgenographic examination was not conclusive as abnormalities were attributable to the secondary effects of the lesion (atelectasis) and were not due to a shadow of the lesion itself. A biopsy diagnosis was established in fourteen of the fifteen cases of this type studied bronchoscopically.

Four (20 per cent) of the cases were of the pneumonic type. Roentgenograms showed shadows of the lesions, and atelectasis was not an early finding. The diagnosis in this group could not be verified by bronchoscopic examination.

The outstanding symptoms and signs presented in this series of cases are analyzed. A chronic cough was an early symptom in all but one case. Weakness and hemoptysis were present in slightly over half of the cases. Other symptoms and physical signs were not reliable.

The author predicts that early recognition of the condition will become more frequent because (1) there is an early warning symptom, a persistent cough; (2) the majority of the lesions originate in a stem bronchus and can therefore be visualized bronchoscopically; and (3) stem bronchus lesions are limited by the cartilaginous rings of the bronchus and therefore early infiltration is often retarded.

Cases of primary carcinoma of the lung should be subjected to exploratory thoracotomy if (1) all clinical and roentgenographic examinations fail to prove the presence of metastasis, (2) a primary lesion is strongly suspected but not proved by bronchoscopy and (3) the general condition of the patient is fairly good. The general effects of associated pulmonary suppuration do not necessarily contraindicate operation as extirpation of the involved lobe or lung reserves the patient of this lead.

Nyström, G., and Bialock, A.: Contributions to the Technique of Pulmonary Embolotherapy. *J. Thoracic Surg.* 1935, 5, 69

Trendelenburg, in one of his early communications, stated that the technical occlusion of the circulation in the performance of pulmonary embolotherapy could not be tolerated for longer than two minutes, and that such occlusion for more than forty-five seconds is inadvisable. The authors performed experiments on dogs in an effort to find a means by which longer occlusion of the pulmonary circulation could be produced with subsequent recovery.

Five groups of experiments were carried out. In the first group the pulmonary artery and aorta were occluded. In the second, defibrinated blood as perfused into the aorta between the clamp and the heart. In the third, defibrinated, oxygenated blood was perfused into one carotid artery as well as into the aorta proximal to the clamp. In the fourth, the pulmonary artery alone was occluded. In the fifth, the operation performed in the first group was done with a more refined technique. After removal of the occluding clamp in each group an attempt to reanimate the heart was made unless the heart began to beat spontaneously. The means of resuscitation consisted of the injection of 1 c.c. of adrenaline into the aorta and massage of the heart.

In the first group the maximum occlusion period which was followed by recovery was approximately six minutes. The introduction of defibrinated blood into the aorta between the heart and the clamp permitted extension of the occlusion time for two or three minutes. The introduction of blood into the carotid artery as well as into the aorta in the third group indicated, but did not prove that this additional procedure was of benefit. In this group the respiratory movements returned in all animals in which the beating of the heart was resumed. The best results were obtained in the fourth group in which the pulmonary artery alone was occluded. Of thirteen experiments in which the occlusion periods ranged from five to twelve minutes, recovery occurred in eleven. In the fifth group the incidence of

recovery was higher than in the first group, but did not approach that in the fourth group

The authors make no clinical deductions from these findings

EARL O. LATIMER, M.D.

Audibert, V., Avicrinos, F., and Farnarier, S.
Primary Cancer of the Pleura (Cancer primitif de la plèvre) *Arch. méd.-chir. de l'appar. respir.* 1935, 10: 221

Primary carcinoma of the pleura was first described in 1860, by Lepine. The authors report a pleural carcinoma occurring in a man thirty-one years of age. They describe the autopsy and histological findings and present photographs of the tumor mass.

A review of the literature shows that pleural carcinomas are most frequent in males between the ages of forty-five and fifty-five years. The youngest subject was a child of five years whose case was reported by Hilder. The right side seems to be involved more often than the left. By some, the condition has been attributed to trauma, and by others to tuberculous inflammation.

The early symptoms are few so that the condition usually escapes recognition until late in its course. As in most cases the first complaints are slight apathy and vague thoracic distress, a diagnosis of early tuberculosis is often made.

The correct diagnosis is arrived at by exclusion. Tuberculosis is ruled out by the negative sputum and the findings of roentgen examination of the lung. The lesion is unilateral and painful, and often accompanied by the effusion of a serofibrinous or hemorrhagic fluid. Syphilis is excluded by examination of the blood, and hydatid cyst and carcinoma of the lung by X-ray examination.

The prognosis is obviously unfavorable. However, the course of the condition is much slower than that of cancer at other sites and death may be delayed for several years. The authors attribute the slowness of progression of the lesion to the fact that the pleural endothelium forms a dense covering around the tumor mass and to the rather poor blood supply of the pleura which is not favorable to early metastasis.

Metastases to adjacent structures is not infrequent. These tumors may arise from mesenchymal or endothelial tissue, but the authors believe that they are usually mesenchymatous.

MARSH WILLIAM POOLE, M.D.

MISCELLANEOUS

Abelló, J., Tamames, M., and Abelló, F. An Anatomotopographical Study of the Vessels of the Thorax. Their Relation to Adhesions. Analysis of the Vascular Images Seen Through the Thoracoscope (*Estudio anatomotopográfico de los vasos del tórax. Relación de estos con las adherencias. Análisis de las imágenes vasculares vistas por toracoscopia*). *Prog. de la cir.*, Madrid, 1935, 23: 733

In pneumolysis, an exact knowledge of the disposition of the blood vessels as seen with the endoscope enables the surgeon to avoid fatal accidents. The importance of hemorrhage varies according to the vessel wounded and whether it is encountered in adhesions, the thoracic wall, or the lung.

The studies reported were begun with dissections on cadavers obtained from a tuberculous sanatorium. The authors present a large number of roentgenograms and illustrations showing the endoscopic appearance of adhesions. They state that it is essential to know not only the normal vascular anatomy, but also the possible anomalous relationships of the vessels.

Adhesions and vessels may have four important relationships. The adhesions may be near or attached to a vessel. Vessels may be included in adhesions, or because of its displacement and abnormal disposition, a vessel may be mistaken for an adhesion.

In order to avoid accidents it is advisable to make roentgenograms in all directions. A study of such a series of roentgenograms permits better orientation and often reveals the relationship between adhesions and vessels. It is stated that the left subclavian vessels may present the appearance of adhesions, especially when there has been displacement such that the relationships to surrounding structures are not normal.

WILLIAM R. MEERER, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Babes, A.: Tuberculosis of the Umbilicus—Tumoral Form (La tuberculose de l'ombilic—forme tumorale) *Rev. franc. de gynéc. et Obstet.* 1935, 30, 905

Tuberculosis of the umbilicus is generally not mentioned in textbooks on pathology or mentioned merely incidentally in the discussion of tuberculosis of other organs. In the chapter on tuberculosis of the peritoneum in the textbook of Roger Vidal, and Tessler the statement is made that in the ulcerocaseous form of peritoneal tuberculosis the necrotic process may extend to the abdominal wall, forming a periumbilical phlegmon which generally perforates.

The author discusses another form of tuberculosis of the peritoneum which he calls the tumoral form and has not found described in the literature.

The patient was a woman twenty-four years of age who came to the hospital because of distention of the abdomen and pain in the abdomen and back. Menstruation began at the age of twelve years and continued normally for five years. After that it was scanty, occurred at intervals of six weeks, and was accompanied by pain in the abdomen irradiating into the lumbar region. The patient was married at the age of twenty-two years, but had never been pregnant.

Examination disclosed distention of the abdomen and dullness in the flanks which moved on change of position. The umbilicus was swollen, indurated, and painful. The vulva and uterus were small and the left adnexa sensitive. The Wassermann reaction was negative.

Operation revealed multiple tubercles of the peritoneum, adnexa, and uterus and a nodule the size of a cherry in the umbilicus. The microscopic picture was that of the fibrous form of tuberculosis. No caseation was demonstrated either microscopically or macroscopically in any of the nodules.

The author thinks it probable that the tuberculosis originated in the peritoneum and passed from there to the umbilicus through the lymphatic circulation. The absence of tuberculous lesions of the parietal peritoneum in the region of the umbilicus and the lack of adhesions between the parietal and visceral peritoneum in this region argued against its extension by continuity.

As this form of tuberculosis of the peritoneum is now recognized, it should be borne in mind and a differentiation established between it and secondary tumors of the umbilicus. The differentiation is generally difficult by clinical methods alone. It must be based on a detailed study of the primary intra-abdominal affection or if this is impossible, examination of a specimen excised from the umbilical lesion.

AMORY GORE MORGAN, M.D.

Bonsacconi, A.: A Case of Multiple Cysts of the Mesentery with Varying Contents Stimulating Circumscribed Appendicular Peritonitis (Un caso di cisti multiple del mesentero a vario contenuto, suscitate una peritonite circoscritta appendicolare) *Paed. Rasse.* 1935, 42, sez. chir. 485

The author reports a case of voluminous cysts of the mesentery of lymphatic origin. One of the cysts contained a bloody fluid and the others a simple chylous fluid. They are classified as hemo-chylangiomas of the mesentery.

About 500 such cases have been recorded in the literature, yet they are relatively uncommon. Bonsacconi reviews the literature, discusses the clinical manifestations, etiology and pathology of the condition, and presents a detailed classification of the types of mesenteric cysts. He then reports in detail the case of a six-year-old girl in whom such cysts were found. The development of the symptoms in this case suggested the common sequence of acute appendicitis followed by rupture of the appendix and the formation of a focal peripendicular abscess. However, the tumor mass persisted and there was only a slight elevation of the temperature, two observations which are not characteristic of the usual abscess. Operation was decided upon with the tentative diagnosis of peripendicular abscess, tumor of the small intestine, or abdominal cyst.

A large cyst was found in the mesentery of the small intestine. Its removal was accomplished only by resection of the adjacent portion of the small intestine. Pathological examination revealed multiple cysts of the lymphatic tissue of the mesentery complicated by intracavitary hemorrhage in one of the cysts. The macroscopic and microscopic pathological changes are described with illustrations.

The syndrome presented is explained by the hemorrhage into the cyst and compression of the lumen of the small intestine. A LOUIS ROSE, M.D.

Fleischer Hansen, C. G.: Primary Retroperitoneal and Mesenteric Tumors (Die Mesenterial- und Retroperitonealtumoren) *Archiv für Klinische Chirurgie* (Nord und Tübinger) 1935, p. 608

Primary retroperitoneal and mesenteric tumors belong to the more rare surgical conditions. Early diagnosis and treatment are important for the prognosis. The development of these tumors occurs in the retroperitoneal spaces beside the spine. Tumors developing in the mesentery belong to the same group. Between the neoplasms occurring at these sites there are transitional forms. Some of the supranatural tumors also belong in this class.

In spite of the close genetic relationship, the anatomico-pathological picture of retroperitoneal and

mesenteric tumors is rather variable. The tumors are chiefly solid or cystic. In the mesentery, cystic tumors are three or four times as common as solid tumors. Of the solid retroperitoneal tumors, 40 per cent are lipomas and 40 per cent are edematous, fibromatous, or myxomatous neoplasms. There are bone and cartilage tumors as well as sarcomas. A large group of these tumors originate in the nerve tissue (neuromas). Another group consists of the fibromas and fibromyxomas, which, however, are rare. The solid retroperitoneal tumors may reach a considerable size. This is especially the case with lipomas. Because of their size they may exert pressure on neighboring organs or grow around them.

The histologically malignant tumors rarely show malignant characteristics such as metastasis and infiltrating growth. In children, however, rapidly growing typically malignant lymphosarcomas occur and metastasize rapidly. The majority of the tumors developing in the adrenals are small and benign and of relatively little interest to the surgeon. However, there are some malignant tumors which have a tendency to grow into the kidney. Occasionally the adrenals are the site also of lymphangiomas which may become rather large. Like the solid tumors, the cystic tumors occur much more frequently in women than in men. They lie most commonly in the mesentery of the ileum, but may be found also in the mesentery of the jejunum and transverse colon. The round or elongated growths usually contain chylous or serous fluid and may become very large. As a rule they are lymph or chylous cysts, and more rarely, polycystic lymphangiomas.

The symptoms of retroperitoneal tumors are very variable. As long as the neoplasms are small, symptoms may be absent and therefore the tumors may not be recognizable. Even larger tumors may cause only vague symptoms such as headache, lassitude, and insomnia. The largest ones produce a sense of fullness, weight, and pressure in the abdomen. Even the symptoms due to displacement of organs are remarkably indistinct. These include digestive disturbances, colic, and vomiting, and frequently also venous congestion. In general, only the kidney tumors cause characteristic symptoms. The mesenteric tumors usually produce severe symptoms such as pain, obstipation, dyspepsia, emaciation, weakness, and lassitude. Ileus seems to occur more often in association with cystic tumors than with solid tumors. The author reports seven personally observed cases, one each of lipoma, neurofibroma, wolffian-body cyst, sarcoma and carcinoma of the adrenal gland, mesenteric cyst, and solid mesenteric tumor.

(HAAGEN) LEO A. JUNEK, M.D.

GASTRO-INTESTINAL TRACT

Perman, E. *Surgical Treatment of Gastric and Duodenal Ulcer*. *Acta chirurg. Scand.*, 1935, 77, Supp. 38.

This monograph is not a complete discussion of the surgical treatment of gastric and duodenal ulcer,

but an account of the author's own investigations in the field.

Part 1 deals with anatomical research. The innervation of the stomach is described in detail. Special consideration is given to the nerves which are damaged by the various types of surgical intervention. It is interesting to note that the author finds that the innervation of the stomach of the dog does not differ from the innervation of the human stomach. In this conclusion he disagrees with Pavlov.

The circulation of the duodenum and pancreas are described in detail and shown by 5 drawings and 12 colored plates.

Mobilization of the duodenum is described. Emphasis is placed upon the fact that Kocher mobilization can be done without damage to the blood vessels and is intended primarily only for the pars descendens. Mobilization of the pars superioris is done by the technique of Clairmont and requires incision of the duodenohepatic ligament which produces immediate hemorrhage from the superior duodenal artery or its branches that necessitates ligation.

Practically one-half of the monograph is devoted to a discussion of "gastric ileus following operations for ulcer." This includes first a discussion of ileus of the small intestine following operations on the stomach. There is a comprehensive review of the literature on gastric ileus in which mechanical obstruction, gastric emptying, and atony of the gastric wall are mentioned as causes of gastric ileus.

The frequency of postoperative vomiting and gastric ileus after stomach operations are next considered. Then follows a chapter on the symptoms and development of gastric ileus, with a consideration of the postoperative gastric physiology in which the author discusses how soon gastric contents pass down the intestine after operation, the postoperative production of hydrochloric acid, and the postoperative bacteriology, motility, and histopathology in the region of the anastomosis and their effect upon gastric ileus.

A brief presentation of the conservative treatment of postoperative "stagnation" in the stomach is followed by a discussion of the operative treatment of gastric ileus. The impression is gained that Perman favors the formation of a primary fistula in operations for gastric and duodenal ulcer for more effective treatment of this surgical complication.

In Part 3 of the monograph the effect of surgery on the secretion and motility of the stomach is described. Following a brief review of outstanding experimental contributions, a detailed study of fifteen cases in which the quantity of hydrochloric acid secreted was determined for ten days after gastro-enterostomy is reported. In general, the hydrochloric acid secretion was copious in the first few days. The point is made that bile alone, through neutralization, can lower the acidity only slightly. Four cases of peptojunal ulcer were investigated long after the establishment of the gastro-enteros-

tony. These also showed very high acid values. The conclusion is drawn that gastro-enterostomy causes no decrease in acid production in the stomach and diminishes the acid values only to a very slight extent.

In similar fashion the acid contents in the stomach after resection were investigated. The contributions of the physiologists, Pavlov, Edkins, and Carlson, of the clinicians, Schur and Maschke, and of von Haberer and Enderlein and many other surgeons are briefly reviewed. The general consensus of opinion is that resection removes only the antrum; the fundus remains and continues to secrete acid. Several of Perman's cases are reported in detail. These permit the conclusion that immediately after the operation, profuse acid production occurs, but later there is a decrease in the quantity of acid in the stomach after test meals. This gradual change is certainly related to the altered conditions for downward passage. Both emptying and regurgitation of intestinal contents must be more profuse in the later postoperative period. The quantity of hydrochloric acid in the stomach after the test meal seems to bear a certain relation to emptying. When the emptying is more rapid, as after the Billroth II operation, smaller quantities of acid are found.

There is a brief discussion on histological and histochemical studies of the gastric mucosa obtained from cases in which hydrochloric acid of different values was secreted. A technique of staining tissues is described. Emphasis is placed upon the necessity of controlling the hydrogen-ion concentration in the stains, and 2 colored photomicrographs demonstrating the results are presented.

In Part 4 of the monograph Perman discusses the results of surgical treatment of gastroduodenal ulcer. The material consisted of 388 cases operated upon in the period from 1897 to 1925. As the study was made in 1928 and 1929, the observation period for the cases operated upon before 1925 was over three years.

In cases of extrapyloric gastric ulcers excision has been abandoned because 5 recurrences developed in 11 cases. Pyloroplasty was performed in 25 cases, 6 of which could not be included in the statistical evaluation because 3 of the patients died as a result of the operation, 2 died of other diseases, and could be traced. Of the 19 remaining patients, 6 were found completely well and able to work, and 5, though able to do their normal work, were unable to eat all foods and had vague indefinite gastric complaints. Recurrence developed in 6 men, and 4 women.

Gastro-enterostomy with exclusion of the pylorus was performed in 53 cases. Seven of the operations were performed between 1909 and 1912 and 46 between 1912 and 1920. In 1920 the operation was done only once and then abandoned. Of the 53 patients, 1 died as the result of the operation, 1 died of postoperative ileus, 6 died of other diseases with no complaint of ulcer trouble, and 4 could not be traced. Of the 41 remaining, 18 were found well, 4

were not well but had normal working capacity, 3 had digestive symptoms which limited their working ability, and 16 had developed recurrences.

In the period from 1897 to 1925, 187 gastro-enterostomies were done. One hundred and forty-nine were posterior gastro-enterostomies. Sixteen (8.5 per cent) of the patients died as the result of the operation, 11 died of a condition other than ulcer, and 7 could not be traced. Of the 143 others, 93 were found well and had full working capacity, 9 complained of symptoms not of the ulcer type, but had normal working capacity, 11 had symptoms not of the ulcer type which reduced their working capacity, and 30 had definite ulcer symptoms.

Ninety-seven Billroth II operations were performed. Eleven (11.5 per cent) of the patients died after the operation and 6 died of other diseases. In the cases of the latter no information regarding the ulcer could be obtained. Fifty-three of the patients traced were found well and had normal working capacity, 6 had symptoms but were not incapacitated, 16 had symptoms which decreased their working capacity, and 1 had developed a recurrence.

Twenty-four patients were operated upon for recurrences after gastro-enterostomy alone or after gastro-enterostomy with excision of the pylorus. In the 8 patients in whom the gastro-enterostomy was undone, the results were poor. Of 3 subjected to resection of the first gastro-enterostomy and the formation of a new gastro-enterostomy, 1 died and the 2 survivors developed recurrences. The results of the re-operative procedures were extremely poor.

Part 5 of the monograph deals with the etiology of ulcer. The literature and the most important theories are reviewed.

The final chapter discusses the choice and method of operation for ulcer. SAMUEL J. FOULKE, M.D.

Pack, G. T., Schernberg, L. H., Orsbury, E. H., and Lohmann, M. C. Palliative Irradiation of Gastric Cancer. *Arch Surg* 1925, 21, 871.

The literature on the effect of irradiation on the normal and diseased stomach is reviewed, and in this connection the interesting observation is made that gastric cancer was the first type of tumor ever treated with the roentgen rays. In 1896 Desmoulin reported relief of pain and improvement in the general condition in a case of cancer of the stomach treated by roentgen irradiation.

Because of the physiological function and the location of the stomach as well as the advanced stage which gastric cancer has so frequently reached at the time of first observation, adequate irradiation for cure of the cancer is impossible. As the liver is as sensitive to irradiation as are the metastases to that organ the treatment of such metastases is not successful.

Although a greater percentage will respond in some degree, it is probable that fewer than 10 per cent of gastric cancers are radiosensitive. The most radiosensitive cancers are located in the regions in which surgical approach is most difficult. The cancer

and the fundus. Consequently irradiation of lesions in this location is justifiable.

The authors review the gross anatomical classification of Ewing. They have found the gelatinous carcinoma, the diffuse scirrhous carcinoma of the linitis plastica type, and the fibrocarcinoma radioresistant. A certain anaplastic small cell gastric cancer which bears a close morphological resemblance to lymphosarcoma, and the carcinoma telangiectatica are radiosensitive.

The preparation of the patient for irradiation therapy is quite as important as the preparation for surgery and along similar lines. The stomach should be thoroughly lavaged to decrease the possibility of infection, the presence of which may lead to massive necrosis following irradiation.

The authors describe their methods of treatment in detail. These have included the use of roentgen rays, the radium-element pack, interstitially implanted radium, and combinations of these elements. They regard the radium element pack as the most effective agent for the external irradiation of gastric cancer. External roentgen irradiation is given through several ports to cross-fire at the stomach, and the Coutard technique is used. Interstitial implantation of radium is somewhat hazardous because of the possibility of producing perforation.

Carcinoma of the cardia is treated by the implantation of gold radon seeds in addition to external irradiation. The seeds are implanted through an endoscope inserted in a gastrostomy opening, and through the seromuscular coat after exposure of the cardia by resection or the elevation of a left costochondral rib flap. Inoperable pyloric and antral carcinomas are treated whenever possible by irradiation after gastro-enterostomy with exclusion of the cancerous distal segment of the stomach.

Pre-operative irradiation has not been employed routinely for operable cancers in the distal half of the stomach because, in the author's opinion, there is little rational basis for the irradiation of the barium filled stomach. Although irradiation may be instituted within two weeks after operation without impairment of wound healing, postoperative irradiation is reserved for the operable gastric cancers which histological study has shown to be among the rare anaplastic radiosensitive tumors.

The authors list an imposing group of possible complications of irradiation of gastric cancer. These include irradiation sickness, peritonitis, gastric hemorrhage, necrosis, and the formation of fistulas to adjacent viscera. They conclude that irradiation is palliative rather than curative for gastric cancer.

Four cases with survival periods of from two to seven years following the initial irradiation are reported.

HAROLD C. OCHSNER, M.D.

Ruggieri, E. *Calcemia and Intestinal Occlusion* (Calcemia ed occlusione intestinale). *Polclin* Rome, 1935, 42 sez. chir. 669.

In the author's experimental studies of the changes in the blood calcium in intestinal obstruction, the

obstruction was absolute with aseptic division of the bowel and was produced at varying levels. The calcium determinations were made before and at varying intervals after the obstruction.

As a rule the calcium value increased. The increase varied according to the level of the obstruction, being higher the higher the obstruction. It follows, therefore, that the calcium values are inversely proportional to the sodium chloride values. The mechanism of the hypercalcemia was not definitely determined. It is possible that the movement of the calcium to the blood from the tissues follows the disturbance of the mineral balance caused by the loss of chlorides. The resulting hypercalcemia probably has an effect on the muscular apparatus, aggravating the atony of the bowel. It may be related also to the dehydration, the increase in superficial tension, and the hyperglycemia.

A. LOUIS ROST, M.D.

Latten, W. *Bleeding Jejunal Varices. A Contribution on the Differential Diagnosis of Gastro-Intestinal Hemorrhage* (Blutende Jejunalarvenen. Beitrag zur Differentialdiagnose der Magen-Darm-Blutungen). *Zentralbl. f. Chir.*, 1935, p. 1643.

The most common causes of gastro-intestinal hemorrhage are ulcers, carcinoma, tuberculosis, and polyps. Rare and recognized only with difficulty are hemorrhages from varices such as those of the esophagus in cirrhosis of the liver. Occasionally the usual diagnostic procedures fail and, as in the case reported by the author, the cause of the hemorrhage can be established only at operation.

Latten's patient was a man forty years old who had had gastric distress for two years and became ill with signs of gastro-intestinal bleeding—tarry stools, lassitude, and syncope. At first the hemoglobin was 69 per cent, and later 62 per cent. Palpation of the abdomen revealed nothing unusual. The patient recovered in a few weeks. Transillumination of the stomach suggested the presence of an ulcer on the lesser curvature, but at operation the stomach and duodenum were found normal as were also the liver and the portal vein region. However, further exploration of the abdomen disclosed along the entire length of the jejunum, many varicose veins of the intestinal wall, twisting, winding, and running transversely and separated only by two finger-breadth zones of normal bowel wall. Pressure on these vessels immediately produced small hematomas. The ileum and colon were normal. The unusual condition in the jejunum was regarded as the cause of the hemorrhage. No further procedure was undertaken. The patient recovered rapidly and the bleeding did not recur.

It is known that varices may be formed in the gastro-intestinal tract as the result of stasis. However, no stasis was present in this case.

Fischer believes that such varices belong to the congenital vascular anomalies. At autopsy in one case he found varices throughout the gastro-intestinal tract.

Femter reported a case of varices of the lower ileum and the transverse colon. The patient died of hemorrhage from these vessels. Microscopic examination showed a weakening of the venous walls and varicose enlargements in the submucosa of the intestine.

Bouchet and Devaux reported two cases of varices of the lymph vessels of the intestine.

Besides these cases there are no smaller observations recorded in the literature. The condition is doubtless very rare. The diagnosis can seldom be made before operation.

In the treatment it remains to be determined whether resection of the bowel should be done if there is immediate danger of hemorrhage and if the varices are limited to a circumscribed area.

(E. WILLIAMS) J. DANIEL WILLIAMS, M.D.

Sperling, L.: *The Role of the Ileocecal Sphincter in Cases of Obstruction of the Large Bowel.* *Arch Surg* 1935 23 27

The author has shown that the ileocecal sphincter is able to withstand moderate increases of intra-enteric pressure such as occur in obstruction of the colon. In clinical cases of such obstruction the intra-enteric pressure has been found to vary from 10 to 50 cm. of water.

A competent ileocecal sphincter prevents regurgitation into the ileum and converts what would otherwise be a simple type of obstruction into a closed loop with all the inherent danger of strangulation due to increasing intra-enteric pressure. In experiments on dogs, pressures of from 30 to 50 cm. of water maintained for twenty-four hours produced areas of hemorrhagic necrosis in the colon. That similar changes take place in the human colon is evident from a perusal of the literature and the cases reported by the author.

The term "ileocecal valve" is a misnomer. The organ is more rightly called the "ileocecal sphincter." It is subject to definite nervous control, and its competency depends on the tonicity of its fibers. That the tone of the sphincter is increased by stimulation of the sympathetic nerves is confirmed by the author's experiments. It has been shown also that stimulation of the distal part of the colon increases the resistance of the sphincter to backpressure to approximately three times that of the normal sphincter. Stimulation of the parietal peritoneum, the stomach, or the small bowel has no such effect. It is conceivable that the resistance of the ileocecal sphincter to backpressure is greatly increased in cases of intrinsic pathological conditions of the colon. Stimulation of the distal portion of the colon, acting through Auerbach's plexus, increases the tone of the ileocecal sphincter making it more competent.

The author cites the following important clinical observations with relation to a competent ileocecal sphincter in cases of obstruction of the large bowel.

Coming in a late symptom is obstruction of the large bowel. The competent ileocecal valve

allows material to pass into the colon but none to be regurgitated into the small bowel and stomach. In the cases cited, aspiration of the stomach resulted in the return of only a few cubic centimeters in spite of the fact that these cases represented late stages of obstruction.

2. X-ray section as a method of decompression is of little value in the treatment of acute obstruction of the large bowel with considerable distention.

3. A single roentgenogram of the abdomen of a patient with clinical intestinal obstruction should differentiate between obstruction of the small bowel and obstruction of the large bowel. The roentgenographic demonstration of marked distention of the colon and distention of the cecum with no visible loops of small bowel should clinch the diagnosis of obstruction of the left colon.

4. All acute obstructions of the large bowel exhibiting considerable distention should be treated as obstructions of the closed loop type with potential strangulation, by means of operative decompression (cecostomy or transverse colectomy).

Lundberg, K.: *The Symptomatology of Diverticulariform Formations of the Colon. Especially with Respect to the Catalase Action in Faeces.* *Acta Med Scand* 1935, Supp. 72

Lundberg reports on 103 cases of diverticular disease of the colon. His study was begun in 1933 and carried out chiefly in the Maria Hospital, Stockholm. The chief purposes of the investigation were to make a careful analysis of the symptoms of the condition and to determine the value of the catalase test of the feces.

The author states that about 5 per cent of patients subjected to roentgen examination of the colon are found to have diverticular disease. Diverticular formation in the colon is most common in the sixth and seventh decades of life. Before the age of forty years it is rare. In the early stages the diverticula cause only slight or no discomfort, but it appears that if much benefit is to be expected from treatment early diagnosis is necessary. While roentgen and rectal examinations are of great diagnostic aid, there is need for a simple test for the early demonstration of inflammatory changes.

In 68.9 per cent of the cases reviewed the diverticula were localized in the sigmoid. In 90 per cent they were found in both the descending colon and the sigmoid. Their number ranged from 1 to 100.

Roentgen examination showed spasm of the intestinal wall in 74.8 per cent of the cases and rigidity of the intestinal wall in 10.7 per cent. Inflammatory changes in the mucous membrane were present in 53.1 per cent. In no case were there changes in the mucosa which might have been interpreted as carcinomatous degeneration arising in a diverticulum. Diverticula formation in other organs was found in 6 cases.

Of the 103 patients, 20.3 per cent died within a period of seven years and seven months. Only 1 death was related directly to the diverticular disease.

The most frequent causes of death were malignancy in other regions and heart, blood-vessel, and lung disease.

The catalase test of the feces was made in 56 cases. It was carried out both by Norgaard's original method and by the author's modification of that method. To serve as a control, 93 tests were made of the feces of 42 normal persons, two-thirds of whom were over forty years of age. The results are grouped with regard to the occurrence of a positive or negative benzidin reaction. The catalase figures both as regards negative and positive benzidin reactions were, on the average, higher in the cases of diverticular disease than in the controls. Also, in from three-fourths to three-fifths of the former they exceeded the limits of variation in the controls. The test is therefore of diagnostic and, indirectly, of value in the determination of the indications for treatment against inflammatory processes in the bowel wall.

The concluding 116 pages of the monograph present abstracts of the histories of 107 cases of diverticular disease of the large bowel.

JOHN W. NUZUM, M.D.

Gebhard, H. *Carcinoma of the Rectum on the Services of Graser and Goetze at the Surgical Clinic of the University of Erlangen in the Period from 1918 to 1931. A Statistical Review of the Cases Coming for Treatment and Operation, with Particular Regard to the Sacral Method of Operation* (Das Rectum-Carcinom an der chirurgischen Universitätsklinik Erlangen unter Professor Graser und Professor Goetze in den Jahren 1918-1931. Eine statistische Erfassung der zur Behandlung und Operation gelangten Fälle mit besonderer Berücksichtigung der sacralen Operationsmethode) 1935 Erlangen, Dissertation.

The author presents detailed statistics on cases in which operation was done for carcinoma of the rectum, especially those in which sacral amputation was performed in the period from 1918 to 1931, when the new sacral method of Goetze was first employed. Seventy-five and seven-tenths per cent of the patients were men and 24.3 per cent were women. One per cent were between thirty and forty years of age, 14.7 per cent between forty and fifty, 47 per cent between fifty and sixty, 26.4 per cent between sixty and seventy, and 6 per cent more than seventy.

The cases operated upon by Graser in the period from 1918 to 1928 have already been reviewed by Westhues-Papp in a report entitled "Ten Years of Rectal Surgery, 1918-1928." The author made a special study of those operated upon by Graser in the period from 1925 to 1931.

In 1925, sacral amputation was done by Graser in 9 of 18 cases coming for treatment, in 1926, in 7 of 16 cases, in 1927, in 6 of 26 cases, and in 1928, in 11 of 23 cases. Accordingly, of the total number of 83 cases coming for treatment in the period from 1925 to 1928, sacral amputation was done in 33. In 5 cases another operation was performed. Therefore 38 of the 83 patients were operable and 45 were not.

In the period from 1918 to 1925, 174 patients came for treatment. Of these, 55 were subjected to sacral amputation, 98 were operated upon by other methods, and 76 were inoperable.

Therefore during the period from 1918 to 1928, 257 patients came for treatment, 88 were subjected to the sacral operation, 136 were treated by other operative procedures, and 121 were inoperable.

In the period from March, 1929 to March, 1931, Goetze operated upon 22 patients with rectal carcinoma—4 in 1929, 16 in 1930, and 2 in 1931. Fifteen were men and 7 were women. The abdominosacral operation was done in 11 cases and sacral amputation in 9. The operations performed in the 2 cases are not known with certainty, but were probably sacral amputations.

In the last years of the period reviewed Graser became more cautious in placing the indication for operation. He regarded as operable 53 per cent of the cases coming for treatment in the period from 1918 to 1928, 56.3 per cent of those in the period from 1918 to 1925, but only 45.7 per cent of those in the period from 1925 to 1928. The average operability given in the literature is about 50 per cent (Goetze, period from 1929 to 1932).

With regard to the incidence of the indication for operation and the primary mortality of abdominosacral methods, the author cites the following comparative statistics: Koenig indication, 80 per cent, mortality, 32.5 per cent; Kuester indication, 75 per cent, mortality, 25.2 per cent; Kraske indication, 72.2 per cent, mortality, 18.7 per cent; Eiselsberg indication, 66.1 per cent, mortality, 11.1 per cent; Kroenlein indication, 57.2 per cent, mortality, 11.1 per cent; Graser indication, 53 per cent, mortality, 34.5 per cent. In the 22 cases operated upon by Goetze in the period from 1929 to 1932 the mortality was only 40.9 per cent.

In the cases operated upon by the sacral method by Graser, the primary mortality was 5.8 per cent in the period from 1925 to 1928 and 25 per cent in the period from 1918 to 1928. In the cases in which Goetze performed the sacral operation in the period from 1929 to 1931, it was 22.2 per cent, and in those in which he performed the abdominosacral operation in the same period it was 54.6 per cent. The mortality in all of the cases operated upon by Graser and Goetze in the period from 1918 to 1932 was 29 per cent.

The chief purposes of this statistical review were to determine (1) the number of patients who left the clinic alive, (2) the incidence of recurrence in the first, second, and third years after operation, (3) the incidence of metastasis, and (4) the incidence of cure.

Of the 89 patients subjected to sacral amputation by Graser in the period from 1918 to 1929, 64 (71.8 per cent) left the clinic alive, and 34 (53 per cent) developed recurrences. The incidence of recurrence was 66 per cent in the first year after the operation, 27 per cent in the second, 3 per cent in the third, and 1 per cent in the fourth. Cure lasting longer than

three years was obtained in 15 cases (17 per cent of the total number of cases after subtraction of the primary mortality 35 per cent).

In the 11 cases in which Goetze performed a sacral amputation in the period from 1909 to 1931 the primary mortality was 36.3 per cent (4 deaths). Seven (63.6 per cent) of the patients left the clinic alive. Three (27.2 per cent after subtraction of the primary mortality 43.8 per cent) developed recurrences. In the first year after the operation the incidence of recurrence was 66 per cent and in the second year 33 per cent. A cure lasting more than two years was obtained in 36.3 per cent of the total number of cases or 37.3 per cent of the cases of patients who left the clinic alive.

Of the 100 patients subjected to sacral amputation by Graessner and Goetze in the period from 1918 to 1931 (Graessner 89, Goetze, 11), 37 (Graessner 34, Goetze, 3) developed recurrences. Seventy-one (Graessner 64, Goetze, 7) left the clinic alive. A cure lasting more than two or three years was obtained in 29 (Graessner 15, Goetze, 4). The primary mortality was 29 per cent (Graessner 19, Goetze, 4).

In the period from 1918 to 1928, Graessner performed an abdominovesical operation in 16 cases. The primary mortality was 46 per cent (7 deaths). A local recurrence developed in 6 per cent of the total number of cases or 11 per cent of the 9 patients who left the clinic alive. A cure lasting longer than three years was obtained in 2 cases (12.5 per cent of the total number or 22 per cent of the cases of patients who left the clinic alive).

In the 11 cases in which Goetze performed an abdominovesical operation in the period from 1909 to 1931 the primary mortality was 45.4 per cent (5 deaths). Six (54.6 per cent) of the patients left the clinic alive. Three (27.2 per cent of the total number or 30 per cent of those who left the clinic alive) died of metastases. Cure was obtained in 3 cases, the same percentage as in Graessner's cases.

In the 17 cases in which Graessner and Goetze performed an abdominovesical operation in the period from 1918 to 1931 (Graessner 16, Goetze, 1) the primary mortality was 44.4 per cent (7 deaths). Graessner 7, Goetze, 5. Fifteen (88.5 per cent) of the patients (Graessner 9, Goetze, 6) left the clinic alive. A lasting cure was obtained in 5 cases (Graessner 2, Goetze, 3). The incidence of cure was therefore 18 per cent of the total number or 33.3 per cent of the patients who left the clinic alive. Metastases developed in 3 cases (11.1 per cent of the total number or 20 per cent of the patients who left the clinic alive).

In the period from 1924 to 1928 Graessner operated upon 36 patients—40 by sacral amputation and 16 by the abdominovesical method. The primary mortality was 17.8 per cent (10 deaths), 3 following the sacral operation and 7 following the abdominovesical operation. The incidence of recurrence was 20.2 per cent (2 cases, 15 in which the sacral operation was done and 9 in which the abdominovesical operation was performed). Sixteen patients (14 subjected to the sacral operation and 2 subjected to the

abdominovesical operation) remained free from recurrence. The incidence of cure was therefore 25.3 per cent.

In the period from 1909 to 1931 Goetze operated on 22 cases, performing a sacral amputation in 11 and an abdominovesical method operation also in 11. The primary mortality was 40.9 per cent (9 deaths), 4 after the sacral operation and 5 after the abdominovesical operation. Recurrence developed in 3 patients who were subjected to the sacral operation (25 per cent of the 11 patients who left the clinic alive). In the cases in which the abdominovesical operation was performed there were no recurrences.

In the period from 1924 to 1931 78 cases were operated upon by Graessner and Goetze (Graessner 56, Goetze, 22). The primary mortality was 44.4 per cent (29 deaths). Graessner 10, Goetze 9. Recurrences developed in 37.2 per cent (25 cases). Graessner 21, Goetze, 3. A lasting cure was obtained in 39.4 per cent (33 cases). Graessner 16, Goetze, 7.

In the opinion of Goetze, the sacral method is still the operation of choice.

(E. GRASSNER) CLAUDE F. STERN, M.D.

Brunet, W. H., and Ballberg, J. H.: Gonococcal Infection of the Anus and Rectum in Women: Its Importance, Frequency and Treatment. *Am J Syphilis*, 1934, 20, 27.

Gonorrhea of the anus and rectum occurred as a complication in 38 per cent of 250 cases of gonococcal urethritis and cervicitis studied in the women's department of the Public Health Institute. The mode of invasion is presumably direct contamination by the vaginal and urethral secretions and the incorrect use of toilet paper.

Although the gonococcus in anal and rectal infections is usually confined to the superficial layers of the mucous membrane, injury to the mucosal fold opens paths for their deeper invasion with the resulting formation of ulcerations, abscesses, fissures, fistulas, and strictures. As the infected crypts discharge a poorly their infection is often protracted beyond the infection of the genital tracts. Of 39 cases in which the patient was re-examined after an interval of from six months to two years, gonococci were found in 10.

In only 20 per cent of the cases reviewed was a history of symptoms referable to the anus or rectum given voluntarily. The most frequent of these symptoms were itching or burning about the anus, pain on defecation, fullness and a feeling of warmth in the rectum, and a discharge and often blood in the stools.

The best results are obtained by conservative treatment. Painful instrumentation and the use of irrigations should be avoided. A suppository containing a per cent silver proteinate is more better inserted after each bowel movement and before going to bed has been found effective. No patient under treatment should be discharged without a rectal examination and a study of smears.

GEORGE A. COLEMAN, M.D.

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

Zampa, G The Motor Function of the Gall Bladder (Sulla funzione motoria della cistifella) *Arch ital di chir*, 1935, 60 389

The author reviews the various theories concerning the mechanism of emptying of the gall bladder and presents the results of his experiments on the motor function of the gall bladder In his experiments the gall bladders of dogs were filled with iodized oil Emptying was then initiated by the injection of pilocarpine and was studied by serial roentgenograms taken at intervals of five minutes

From a study of the roentgenograms the author concludes that the gall bladder empties itself by contraction of its muscular wall The emptying is influenced by two factors periodic opening of the cystic duct and contraction of the gall-bladder wall There is a functional antagonism between the gall bladder and the sphincteric mechanism of the cystic duct The contraction of the walls of the gall bladder is continuous although slight, whereas the elimination of bile occurs rhythmically at short intervals as a result of the periodic opening of the cystic duct

PETER A ROSI, M D

Gross, R E Congenital Anomalies of the Gall Bladder A Review of 148 Cases, with the Report of a Double Gall Bladder *Arch Surg*, 1936, 32 131

The author reviews 147 cases of congenital anomalies of the gall bladder collected from the literature and reports a case of double gall bladder

The occurrence in man of a double gall bladder with 2 separate gall-bladder cavities and 2 cystic ducts has been reported 28 times The 2 cystic ducts may subsequently converge and form a joint cystic duct which enters the common duct or they may empty into the extraphepatic biliary system separately The accessory bladder may be found contiguous to the normal organ, under the left lobe of the liver, partially within the substance of the liver, or, rarely, along the gastrohepatic ligament When the 2 gall bladders lie next to one another they are often invested by a common peritoneal coat The duplicate nature of the organ is therefore occasionally overlooked at the operating table The size of an accessory gall bladder is usually approximately the same as that of the normal organ, but occasionally is only one-half or two-thirds as great

The reports of cases of double gall bladder do not mention any characteristic symptoms or signs which might be of aid in the diagnosis of the anomaly before operation or autopsy When the accessory organ is the site of inflammatory change or stone formation, the symptoms and signs are indistinguishable from those associated with cholecystitis or cholelithiasis in a normally formed gall bladder The mere presence of a second gall bladder has not clearly given rise to symptoms in any case The fact that most accessory gall bladders have been found

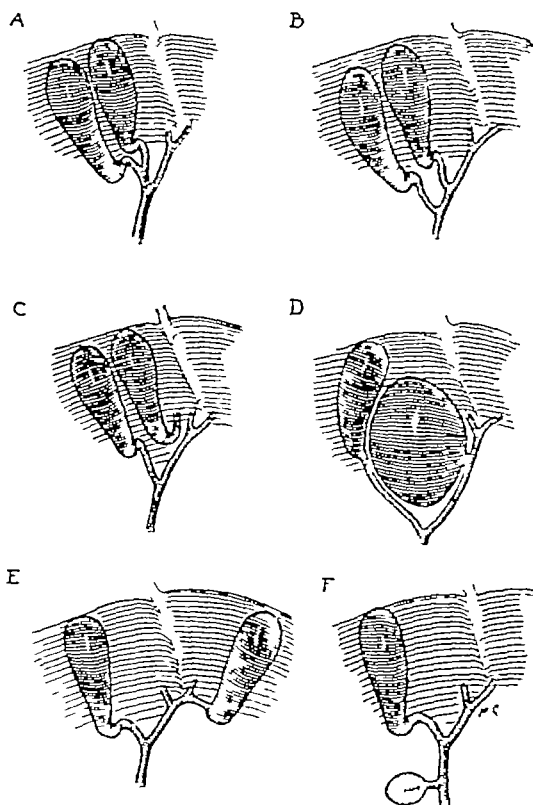


Fig 1 Types of double gall bladder, showing the position of the accessory organs and the distribution of their ducts A shows the gall bladder in the normal fossa with Y-shaped cystic ducts, B, in the normal fossa with two separate cystic ducts, and C, in the normal fossa with an accessory cystic duct directly entering the hepatic substance D shows an accessory gall bladder partially embedded in the right lobe of the liver and communicating with the main hepatic duct, E, an accessory gall bladder under the left lobe of the liver and communicating with the left hepatic duct, and F, an accessory gall bladder in the gastrohepatic ligament, communicating with the common duct.

at operation and only a few at autopsy seems to indicate that the accessory structure is more likely to have pathological changes than the normally formed organ

A bilobed gall bladder in man has been occasionally described This may have the form of a single organ divided by an internal central septum, but more often is of a V shape with the 2 cavities joined only at their junction with the cystic duct In the first type the septum is fibrous, but may contain smooth musculature Glandular elements have been found in the septal mucosa

A diverticulum of the gall bladder may occur along the free surface of the organ from the neck to the fundus In 1 case a diverticulum was found on

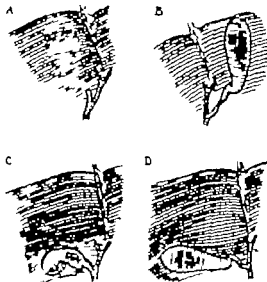


Fig. Abnormal positions of the gall bladder. A in the substance of the liver. B under the left lobe of the liver. C on the posterior part of the inferior surface of the right hepatic lobe, and D horizontal, in the transverse fissure.

the hepatic side of the gall bladder. The diverticula vary from $\frac{1}{4}$ to $\frac{1}{2}$ in diameter.

Thirty-eight cases of absence of the gall bladder with no other anomaly of the liver or biliary system are listed. Not included in this review is a larger group of cases in which in addition to absence of the gall bladder, there was atresia of all or some portion of the hepatic or common duct system. Approximately 200 cases of atresia of the extra-hepatic bile passages have been recorded in the literature. In about one-fourth of these the gall bladder was absent. Absence of the gall bladder has been found twice as frequently in females as in males. So far as could be determined from the reports, absence of the gall bladder has no effect on the general health or the digestive functions.

An hourglass gall bladder is frequently described. From most of the reports it is not clear whether the condition was or was not the result of inflammatory change and cicatricial contraction. However, hourglass gall bladder has been found in young children in whom there was no evidence of gall bladder inflammation.

Of interest to the surgeon, in spite of their apparently rare, are those variations in the bile ducts in which accessory ducts enter the gall bladder directly from the liver.

Abnormal sites of the gall bladder are rare, but at least 4 such locations should be considered because of their interest to surgeons and the technical difficulties they have sometimes presented at operation. A normally formed gall bladder has been

found in the following anomalous positions: within the substance of the liver under the left lobe of the liver posteriorly under the inferior aspect of the right hepatic lobe, and horizontally in the transverse fissure of the liver.

A floating gall bladder because of its suspension by a mesentery is likely to become twisted and infarcted. The resulting gangrene of the organ causes severe clinical symptoms and necessitates immediate operation. Surgical removal of the gall bladder is followed by recovery in most instances if the operation is performed before peritonitis supervenes.

HORN AND A. McKINNEY, M.D.

Colp, R., Gerber, I. E., and Deubillet, H.: Acute Cholecystitis Associated with Pancreatic Re-
flux. *Ann Surg.* 1936, 1: 3-67.

The authors report three cases of acute cholecystitis associated with the presence of pancreatic ferments in the gall-bladder bile. In two cases there was a non perforative bile peritonitis.

It has been shown that if the papilla of Vater is obstructed by a stone, edema, or spasm, the common bile duct and the duct of Wirsung may be converted into one continuous channel and bile may then flow into the duct of Wirsung or pancreatic juice may flow into the choledochus. The intra-ductal pressure probably determines the direction of the flow.

If the pancreatic ferments reach a sufficient concentration in the gall bladder to render the usual acid reaction alkaline, the bile salts may act destructively on the gall-bladder wall together with the activated pancreatic ferments. As a result of the chemical inflammation caused by these various factors, either an acute cholecystitis or non perforative biliary peritonitis may develop.

GROWER, A. CHILLEY, M.D.

Severi, A.: Experimental Studies on Cholecystectomy and Cholecystostomy (Ricorda sperimentale sulla colecistectomia e sulla colecistostomia).
Clin. chir. 1935, 1: 005.

In normal dogs, removal of the gall bladder causes little disturbance besides temporary changes in the blood sugar, blood cholesterol, urinary sugar and tissue glycogen.

Cholecystostomy, however, produces changes of marked degree which may increase as the duration of the fistula is prolonged. The alterations consist principally in a decrease in the iron, hemoglobin, and chlorides of the blood, and an increase in the fragility of the red blood corpuscles. These changes are apparently the cause of the weakness which follows prolonged gall bladder drainage.

When these experimental findings are applied to the human being it is apparent that prolonged cholecystostomy is to be avoided whenever possible and that when it is performed the drainage of bile should not be allowed to continue for long. Cholecystectomy is to be regarded as the operation of choice in all cases of stones in the gall bladder or

infection in the gall-bladder wall. The indications for cholecystostomy are limited to cases in which the clinical condition is so grave as to preclude a more radical operative procedure.

A. Louis Rost, M D

Stalf, K. G. The Late Results of 1,046 Cholecystectomies at the Surgical Clinic of the University of Giessen, with Follow-Up Investigations from 1899 to 1913 (Die Spätergebnisse von 1,046 Cholecystektomien aus der Giessener chirurgischen Universitätsklinik mit Nachuntersuchungen (1899-1913) 1935 Giessen, Dissertation)

This report is based on the 1,046 cholecystectomies performed by Poppert when he was director of the Giessen Clinic. Of the questionnaires sent to the patients, 731 were answered. Seventy-eight of the patients answered the questionnaires and returned for examination. Twenty-one were dead. Eighty-nine of the questionnaires were sent to incorrect addresses and 127 were unanswered.

In discussing the mortality of about 2 per cent the author cites the fact that the review by Hotz of the Poppert Clinic was based on the greatest number of operations with the lowest mortality. The mortality was low even though all of the severe cases of suppurative cholecystitis, operation for recurrences, carcinoma, and severe injury of the entire organism following protracted biliary stasis were included. The 21 patients who died were between forty-five and fifty-five years old. The cause of death was cardiac and circulatory weakness in 15 cases, embolism in 3 cases, and intestinal hemorrhage from gastric ulcer in 1 case. In 2 cases it could not be determined. At the Giessen Clinic, peritonitis and cholemic hemorrhages from the liver were not observed following cholecystectomy and the mortality following cholecystectomy for gall stones was less than half that following all the operative methods used in the 5,000 cases included in the statistics of Hotz.

The follow-up of the patients discharged from the Clinic showed that 295 had died since their discharge. Four hundred and fifty-seven patients were living and answered the questionnaire. Seventy-eight were re-examined at the Clinic and answered the questionnaire. The causes of death of the patients who died outside of the Clinic were associated with the former disease in 25 cases—disease of the stomach in about 10, disease of the liver in about 7, diabetes in 2, pernicious anemia in 1, and ascites (cirrhosis of the liver?) in 6. There were 134 deaths with no relationship to the former disease. The cause of death was unknown in 136 cases. The total mortality was 295 deaths. The cases of cancer of the stomach and the liver, those of diabetes and ascites, and 3 cases of suicide (psychic changes in liver disease) perhaps deserve special attention.

The results of cholecystectomy as learned from the questionnaire in the cases of 457 still living patients were (1) very marked symptoms (frequent colics and gastric symptoms) in 72 (16 per cent),

(2) less severe symptoms (occasional heartburn, intolerance of fat, regurgitation, gastric pressure pains, constipation, and isolated colics after the operation) in 135 (29 per cent), and (3) no symptoms in 250 (55 per cent). The results in the 78 patients re-examined at the Clinic were as follows: (1) very marked symptoms in 14 (18 per cent), (2) less severe symptoms in 34 (44 per cent), and (3) no symptoms in 30 (38 per cent).

In regard to the state of inflammation of the gall bladder and the result of cholecystectomy in the cases of the 78 patients re-examined and those of the 457 patients followed up by questionnaires, both investigations showed that, apparently next to hydroptosis, the outlook for complete cure is apparently best in the cases of acute inflammation. In cases of chronic inflammatory processes and particularly catarrhal cholecystitis without stone formation, the incidence of a favorable prognosis for cure is lower. According to the author's findings, about 16 per cent of the cases are not cured. Therefore cholecystectomy has far better results than other methods of operation. There was not a single case of recurrence of stone in the stump of the gall bladder, which was left as small as possible. This indicates that the origin of gall stones is in the gall bladder. Pseudo-recurrences are stones in the gall bladder that were overlooked. Symptoms from adhesions, which occurred in a few cases, never led to mechanical interference with organic function. A number of subsequent symptoms have no relationship to the liver or the gall bladder (confusion with gastric or duodenal ulcer, appendicitis, and pancreatic and renal affections). Hepatitis of the cholangitic and lymphangitic form was the chief cause of the recurrence of pain. Chronic pancreatitis is produced by stasis in the common bile duct acting as an obstruction to the outflow, or by infected bile entering the pancreatic duct. Acute pancreatic necrosis is a complication of the gall-stone disease, but is found just as often with a common bile duct free from stone.

In regard to the loss of function after cholecystectomy, the author states that spastic and atonic dyskinesias were found. After the removal of a functioning gall bladder the sensitiveness of the sphincter of Oddi is increased and there is a tendency toward spastic conditions and flaring up of the hepatitis in the presence of latent infection, and toward stasis and sensitiveness to pressure in the region of the liver. With the onset of the menopause the severity of the postoperative symptoms is either increased or decreased. Determination of the residual nitrogen is not suitable for determining whether the disease of the liver is the cause of the postoperative symptoms. Gall stone disease is probably a dominant recessive hereditary disease which is partly related to sex.

In 8 per cent of the cases the paramedian transverse section was followed by an incisional hernia. Pepsin with hydrochloric acid and chologen were found useful for the postoperative symptoms.

(A. FRAENKEL) LOUIS NEUWELT, M D

Minnici Del Rosso, L.: The Classification and Pathogenesis of Absence and Atresia, Generalized and Partial, of the Extrahepatic Bile Ducts (Classificazione e patogenesi delle assenze e atresie, generalizzate e parziali, della via biliare extra-epatica). *Sperma*, 1935, 29, 593

After reviewing the previous classifications of congenital abnormalities of the extrahepatic bile ducts, the author presents his own morphological schema, viz. (A) complete absence (B) absence of parts of the tract (simple) (C) generalized atresia, (D) localized atresia (simple) and (E) absence of some sections combined with atresia of others. Each group is subdivided according to the type of the malformations.

The author uses the general term "absence" rather than "agenesis" or "aplasia" because absence may be due not only to a primary lack, but also to regression of a previously normal structure. Simple partial atresia is the most frequent and atresia combined with localized absence the next most frequent. The rarest malformation is simple localized absence.

This morphological classification has an embryological basis and significance, the outstanding feature of which is that the physiological occlusion of the extrahepatic bile passages in the third week is preceded by a period in which they are pervious. The re-appearance of the lumen occurs progressively first in the common duct, then in the cystic duct, and finally in the gall bladder. Whether the malformation is due to agenesis or resorption can be deduced hypothetically from the pathological anatomy. If the common duct is lacking while the other parts of the biliary tract (which develop from it) are present, the absence of the duct must be due to resorption. This is true also when the cystic duct is absent but the gall bladder is present. When only the gall bladder is lacking, the cause may be either agenesis or regression. Generalized or partial atresia of the tract means arrested development. Partial atresia of some parts and absence of others indicates a combined pathogenesis.

Consequently the following embryogenetic classification of malformations of the biliary tract is possible:

1. Forms due to resorption (A, B with reserve in absence of the gall bladder).

2. Forms due to arrested development of Anlagen already present (C and D).

3. Forms due to regression of some parts of the Anlagen and arrested development of others (E, with the same reserve as to the gall bladder).

On the basis of embryology also, it is possible to fix the date of injury to the various parts of the tract. In generalized atresia this factor acted at the beginning of recanalization (third to fourth week) and in the various types of partial atresia, from the fourth to the sixth week according to a definite progression. It is impossible as yet to speak definitely of the evolution of the combined forms.

The author adds an illustrated clinical and pathological report of absence of the common duct, atresia

of the caudal end of the hepatic duct, and total atresia of the gall bladder in a girl three and one-half months old.

The article is accompanied by a bibliography, diagrams, and a chronological index of the reported cases according to morphological type. The author's morphological and embryological classifications are expounded in tables.

M. E. Mowat, M.D.

Judd, E. S., and Hoerner, M. T.: The Surgical Treatment of Carcinoma of the Head of the Pancreas and of the Ampulla of Vater. *Arch Surg* 1935, 31, 937

Although the results following operation for carcinoma of the ampulla of Vater or for carcinoma of the head of the pancreas leave much to be desired, there is still something to be said in favor of such operations. In spite of the improvement in methods of diagnosing disease of the biliary tract, there is an occasional case in which there are typical features of carcinoma of the lower end of the common duct and the obstructive jaundice is found to be due to a calculus. At other times, when pathological changes are found in the head of the pancreas, it may be difficult to determine the nature of the condition. If the lesion subsequently proves to be chronic pancreatitis, biliary-intestinal anastomosis not only provides the best treatment, namely biliary drainage, but also is compatible with life when the patient recovers from the disease. These two factors alone justify operation in such cases.

From the foregoing it would appear that palliative operations are justifiable. However the data presented in this article show also that patients with carcinoma of the ampulla of Vater who survive operation live longer after removal of the growth than those who are given purely palliative treatment for carcinoma of the ampulla of Vater or carcinoma of the head of the pancreas. In all cases in which an attempt is made to resect the neoplasm, death will result eventually. Therefore, although the surgical risk is greater, radical measures offer the only prospect of cure. Even when the outcome is not all that had been anticipated and recurrence develops, the patient may still enjoy a longer period of useful life. There are not many surgical procedures now employed successfully that have not undergone the same metamorphosis. Every attempt adds much to knowledge concerning the disease, and some day a complete cure will be obtained. From the information available at present, radical operations appear to be justified in certain selected cases of carcinoma of the ampulla of Vater in which there is a reasonable chance of obtaining a successful result.

At the Mayo Clinic a study was made of 199 patients subjected to surgery for lesions originating either in the head of the pancreas or in the ampulla of Vater. The former was found to be the primary site 158 times, and the latter 31 times.

Carcinoma of the head of the pancreas may be difficult to distinguish from chronic pancreatitis, in the reversed cases in which the diagnosis of mal-

nancy was verified following palliative operations, the patients enjoyed an average of ten and two-tenths months of useful life after leaving the hospital. In the questionable cases in which the same procedures were carried out, the patients enjoyed an average life of eleven and nine-tenths months. Only 4 per cent of those who survived obtained no benefit from surgery.

Of the 7 patients who were subjected to transduodenal resection of the ampulla of Vater for carcinoma, 5 recovered. Their average postoperative length of life was twenty-five and eight-tenths months. The patients in this group who survived some form of biliary-intestinal anastomosis lived an average of thirteen and nine-tenths months.

Wieden, L. Splenectomy and Re-Examinations of Persons Subjected to It (Ueber Milzextirpation und Nachuntersuchungen an Milzextirpierten) *Mill a d Grenzgeb d Med u Chir*, 1935, 44, 13.

In a period of twenty years eighty-one splenectomies were performed for various conditions. The author reports the cases.

There were twenty-one cases of injury of the spleen. Eight of the patients died soon after the operation and thirteen are known to be well at the present time.

Two patients with perforating splenic abscesses died of peritonitis after the operation. The prognosis of such abscesses is poor.

Seven patients with infarction of the spleen were operated upon without this diagnosis. Three died soon after the operation and three were discharged as cured. Two are still living and one cannot be traced. Of five patients with splenic infarction occurring as a sequela of endocarditis, four died after the operation and one cannot be traced.

All of four patients with thrombophlebitic enlargement of the spleen and thrombosis of the splenic vein were cured. Attention is called to the fact that, in this condition, conservative treatment may also be followed by good results.

Three splenectomies were performed for tuberculosis of the spleen. The patients were discharged as cured. One is known to be well today, but the two others cannot be traced. The results reported in the literature are good.

A patient with sarcoma of the spleen was operated upon twice and died after the second operation.

Thrombopenia is dealt with in more detail. An acute form and a chronic form are recognized. According to Anschuetz, the mortality is from 6 to 8 per cent in the chronic form and from 70 to 80 per cent in the acute form. Of nine patients subjected to splenectomy for thrombopenia, four are well at the present time, two recovered but died later of unknown causes, two cannot be traced, and one died soon after the splenectomy. After the operation the number of thrombocytes at first increases markedly, but later drops to a level slightly lower than normal.

Splenopathic thrombopenia differs from the thrombopenia just mentioned in being accompanied by enlargement of the spleen, thrombopenia, leucopenia, and a hepatosplenic syndrome (subicterus). In the one case of this condition reviewed, only occasional small hemorrhages occurred after removal of the spleen.

One of the splenectomies reviewed was performed for malignant thrombopenia, hemorrhagic aleukia. The patient died soon after the operation.

In a case in which splenectomy was performed for hemoglobinuria there was no improvement after nine weeks.

Thirteen splenectomies were done for hemolytic icterus. Two of the patients died after the operation and eleven left the clinic cured or greatly benefited. Of the latter, seven are now well, three cannot be traced, and one died of an unknown cause.

In two cases the operation was performed for cirrhosis of the liver with splenomegaly. One patient died of an unknown cause two years later. The other, a youth, died soon after the operation.

In the nine reviewed cases of pernicious anemia the results of splenectomy were very unsatisfactory. In the treatment of this condition operation has now been replaced by liver therapy. In cases refractory to liver therapy Lauda observed improvement following removal of the spleen.

One of the reviewed splenectomies was done for aplastic anemia. The patient died.

Of two patients with myeloid leukemia, one died three and a half years, and the other is living and able to work six years, after the splenectomy.

(BUETTNER) J. DANIEL WILLEMS, M.D.

GYNECOLOGY

UTERUS

Gardner, G. H.: When Is Surgery Indicated in Retrodisplacement of the Uterus? *Am J Obst & Gynec* 935 30 596

This is a statistical review of 145 cases of retrodisplacement of the uterus in which operation was performed at the Passavant Memorial Hospital, Chicago in the last five years. In most of these cases there was marked retroflexion.

The cases were divided into those of essential and those of incidental displacement, depending upon the importance of the displacement, *per se* in the production of symptoms. In 37 per cent the retrodisplacement seemed to be the essential lesion, and in the other only incidental to more important associated pathological changes in the pelvis. In only 6 per cent was the displacement of the uterus the only abnormal finding at operation.

The average age of the patients was thirty-two and four tenths years.

The most frequent symptoms were low abdominal discomfort, uterine bleeding, dysmenorrhea, sterility, and backache.

Forty-seven per cent of the patients complained of a bearing down sensation with a feeling of weight and heaviness in the lower part of the abdomen and pelvis. Thirty per cent suffered from an almost constant low abdominal ache which was often increased during menstruation.

Sixty-five per cent gave a history of abnormal uterine bleeding. This consisted of prolonged and profuse periods, excessive menstruation, too frequent and protracted menstruation, and, in a few cases, intermenstrual spotting which tended to appear about midway between periods.

In 44 per cent of the cases the menstrual pain was insufficient to be called a complaint, whereas in 26 per cent dysmenorrhea had developed in adult life.

Although nineteen of the married women complained of sterility in no case could it be proved that the retrodisplacement, *per se* was responsible for this complaint.

Fifty-six per cent of the women did not complain of backache, and in only 3 per cent was it a low backache accentuated at the menstrual periods and relieved by the wearing of a pessary. Furthermore the retrodisplacement could not have been responsible for the backache in more than one-fourth of the patients. By means of a carefully elicited history, a complete physical examination with accurate localization of the site of pain, and attempts to reproduce or accentuate the backache by making traction on the uterus or to relieve it with an appropriate pessary, it should be possible to differentiate an orthopedic backache from backache of genital origin.

Sixty-one per cent of the married women had had no miscarriages and 37 per cent had had 53 spontaneous miscarriages. However there had been 33 full term pregnancies. The incidence of spontaneous miscarriage was therefore 18 per cent whereas for the state of Illinois it is estimated to be 30 per cent. None of the women came to operation because of a tendency to abort repeatedly.

Many different operative procedures were carried out. Most of the operations were abdominal, but a few were performed by the vaginal approach. Some of the procedures were reconstructive and preserved the child bearing function, whereas others were destructive and resulted in permanent sterility. The preferred type of abdominal operation to replace the uterus and preserve the child-bearing function consists of the following 3 steps: (1) setting together of the relaxed uterosacral ligaments with silk for a distance of from 1½ to 2 in. below their cervical insertion, in conjunction with silk setting of the lax posterior leaves of the broad ligaments to each other and to the uterus, often to a rather high point on the posterior surface of the uterus, (2) a Baldy Webster round ligament operation performed with silk and (3) advancement of the bladder reflection from its almost invariably low level on the cervix to a more nearly normal location on the fundus. Such a replacement operation builds a support for the uterus from the uterosacral ligaments and the posterior leaves of the broad ligaments. Not only is the Baldy Webster technique of great value in maintaining an anterior position of the uterus, but it also tends to correct the commonly associated prolapse of the ovaries.

One hundred and twenty-one (83 per cent) of the patients have obtained complete symptomatic relief and an excellent clinical result. In not a single patient has the uterus returned to a retrodisplaced position. Eleven women became pregnant following the replacement operation and the author has been led to believe by obstetricians who have delivered patients of this series as well as other women subjected to such an operation that the classical abdominal replacement operation described does not interfere with the normal progress of labor and the uterus returns to its anterior position following delivery.

The author's findings and conclusions are summarized as follows:

1. Retrodisplacement of the uterus may be responsible for low abdominal and pelvic discomfort, uterine bleeding, and dysmenorrhea. These symptoms are amenable to relief by operative intervention. The importance of complicating conditions in the pelvis in the production of symptoms must not be underestimated. Such complicating lesions were found in 94 per cent of the cases reviewed.

2 The findings at operation indicate that retrodisplacement of the uterus is a menace to the health of the ovaries, is responsible for the development of large, edematous, cystic ovaries which function abnormally, and predisposes to endometriosis

3 In the reviewed cases retrodisplacement was an infrequent cause of backache. It alone was not responsible for sterility, and apparently it did not materially increase the incidence of spontaneous abortion

4 The surgical correction of retrodisplacement should include the use of all supporting structures, namely, the uterosacral ligaments, the posterior leaves of the broad ligaments, the round ligaments, and the peritoneal reflexion of the bladder

5 In the reviewed cases there has been no recurrence of retrodisplacement after subsequent pregnancies nor any interference with the normal progress of labor

Daniel, C. and Lazaresco, S. A Contribution to the Study of Multiple Malignant Tumors Carcinosarcoma of the Uterus (Contribution à l'étude de la pluralité des tumeurs malignes du carcinosarcome de l'utérus) *Rev franç de gynéc et d'obst*, 1935, 30 883

Multiple malignant tumors may appear in the same organ or different organs and may be of the same or a different histological structure. The authors consider particularly carcinosarcoma of the uterus in which both carcinomatous and sarcomatous tissue are found. They emphasize that they are discussing only tumors in which there is a true intermingling of carcinoma tissue derived from epithelium and sarcoma tissue derived from connective tissue. They do not include what Virchow calls "carcinoma sarcomatoides" or carcinomas which, on account of diffuse distribution of the cells, have the appearance of sarcoma or sarcomas which, on account of alveolar arrangement of the cells, have the appearance of carcinoma

In the case they report, that of a woman forty-eight years of age, the tumor was removed by total hysterectomy and the patient recovered from the operation. The histological picture is described in great detail and photomicrographs of different parts of the tumor are presented. The latter show spindle-cell sarcoma in some areas and pavement-cell carcinoma and papillary adenocarcinoma in others. The authors report briefly fifteen similar cases collected from the literature

Clinically, these tumors do not differ from other malignant tumors of the uterus. Almost always they are located in the body of the uterus, but sometimes they occur on the cervix. The microscopic diagnosis is based on the close association and intermingling of sarcoma and carcinoma tissue. The carcinoma tissue may be that of any of the varieties of carcinoma ranging from adenocarcinoma or differentiated or undifferentiated solid carcinoma to canceroid pearls. Sometimes there is a tendency toward metaplasia of the cylindrical epithelium into pavement epithelium

with canceroid pearls on the adjacent mucous membrane which is apparently normal. The sarcoma tissue also appears in all histological varieties—with small or large round cells, spindle cells, giant cells, or polymorphous cells originating from connective tissue or muscle. Because of the greater tendency of sarcoma to enter the circulation, recurrences from these tumors are always sarcomas

It is almost impossible to determine the order in which the two forms of tumor appear

Experiments have shown that when carcinomas are grafted into mice they may undergo sarcomatous degeneration and that painting with tar sometimes produces primary sarcoma. Almost all cancer specialists believe that the presence of one kind of tumor cannot lead to the development of another kind of tissue that is histologically and physiologically mature. The tumors appear separately in cells in an embryologically indifferent stage, and each tissue reacts individually

ALDREA GOSS MORGAN, M D

Heyman, J. The So-Called Stockholm Method and the Results of Treatment of Carcinoma of the Uterus at Radiumhemmet (Die sogenannte Stockholmer Methode und die Resultate bei der Behandlung der Uteruscarcinome am Radiumhemmet) *Wien klin Wchschr*, 1935, 1 129

The method discussed, which has been described frequently, is a fractional contact treatment in which several irradiations are given in a period of a month. The procedure varies somewhat according to the case. The following is an example of the procedure: 40 mgm of radium are placed in the uterus for twenty hours, 800 mgm-hrs being thereby given. At the same time 75 mgm are placed in the vagina for twenty hours, 1,500 mgm-hrs being given. This treatment is repeated after a week and again after an interval of three weeks, with the same dosage. Therefore, in a period of four weeks, 2,400 mgm-hrs are given in the uterus and 4,500 mgm-hrs in the vagina, a total of 6,900 mgm-hrs

The radium is enclosed in gold or platinum tubes with walls equivalent to 1 mm of lead, and the tubes are placed in applicators with walls equivalent to 2 mm of lead. The filtration is therefore 3 mm of lead. The shape and distribution of the applicators vary in different cases. The relatively strong irradiation of the vagina is given for the purpose of influencing the parametric tissues. The bladder tolerates high dosages of radium irradiation better than the rectum. Therefore the radium is introduced as high as possible with the aid of tampons

No difference is made in the dosage in the treatment of histologically different types of cancer. For several years an additional roentgen irradiation with relatively very small dosage has been given, but has proved of little value

It appears to the author that better results are obtained from the use of the "radium cannon," i.e., large amounts of radium (formerly 3,000 mgm, now 5,000 mgm) at a distance of 5 cm from the skin

GYNECOLOGY

UTERUS

Gardner, G. H.: When Is Surgery Indicated in Retrodisplacement of the Uterus? *Am J Obst & Gynec* 1935, 30, 596

This is a statistical review of 145 cases of retrodisplacement of the uterus in which operation was performed at the Paravault Memorial Hospital, Chicago, in the last five years. In most of these cases there was marked retrodemon.

The cases were divided into those of essential and those of incidental displacement, depending upon the importance of the displacement *per se* in the production of symptoms. In 57 per cent the retrodisplacement seemed to be the essential lesion and in the other only incidental to more important associated pathological changes in the pelvis. In only 6 per cent was the displacement of the uterus the only abnormal finding at operation.

The average age of the patients was thirty-two and four tenths years.

The most frequent symptoms were low abdominal discomfort, uterine bleeding, dysmenorrhea, sterility and backache.

Forty-seven per cent of the patients complained of a bearing-down sensation with a feeling of weight and heaviness in the lower part of the abdomen and pelvis. Thirty per cent suffered from an almost constant low abdominal ache which was often increased during menstruation.

Sixty-five per cent gave a history of abnormal uterine bleeding. This consisted of prolonged and profuse periods, excessive menstruation, too frequent and protracted menstruation, and in a few cases, intermenstrual spotting which tended to appear about midway between periods.

In 44 per cent of the cases the menstrual pain was insufficient to be called a complaint, whereas in 26 per cent dysmenorrhea had developed in adult life.

Although sterility of the married women complained of sterility in no case could it be proved that the retrodisplacement, *per se* was responsible for this complaint.

Forty-six per cent of the women did not complain of backache and in only 3 per cent was it low backache accentuated at the menstrual periods and relieved by the wearing of a pessary. Furthermore the retrodisplacement could not have been responsible for the backache in more than one-fourth of the patients. By means of a carefully elicited history, a complete physical examination with accurate localization of the site of pain, and attempts to reproduce or accentuate the backache by manipulation on the uterus or to relieve it with an appropriate pessary, it should be possible to differentiate an orthopedic backache from backache of genital origin.

Sixty-one per cent of the married women had had no miscarriages and 27 per cent had had 53 spontaneous miscarriages. However there had been 51 full term pregnancies. The incidence of spontaneous miscarriage was therefore 16 per cent whereas for the state of Illinois it is estimated to be 30 per cent. None of the women came to operation because of a tendency to abort repeatedly.

Many different operative procedures were carried out. Most of the operations were abdominal, but a few were performed by the vaginal approach. Some of the procedures were reconstructive and preserved the child bearing function, whereas others were destructive and resulted in permanent sterilization. The preferred type of abdominal operation to replace the uterus and preserve the child bearing function consists of the following 3 steps: (1) suturing together of the relaxed uterosacral ligaments with silk for a distance of from 1 1/4 to 2 in below their cervical insertion, in conjunction with silk suturing of the lax posterior leaves of the broad ligaments to each other and to the uterus, often to a rather high point on the posterior surface of the uterus; (2) a Baldy-Webster round-ligament operation performed with silk; and (3) advancement of the bladder reflexion from its almost invariably low level on the cervix to a more nearly normal location on the fundus. Such a replacement operation builds a support for the uterus from the uterosacral ligaments and the posterior leaves of the broad ligaments. Not only is the Baldy-Webster technique of great value in maintaining an anterior position of the uterus, but it also tends to correct the commonly associated prolapse of the ovaries.

One hundred and twenty-one (85 per cent) of the patients have obtained complete symptomatic relief and an excellent clinical result. In not a single patient has the uterus returned to a retrodisplaced position. Eleven women became pregnant following the replacement operation, and the author has been led to believe by obstetricians who have delivered patients of this series as well as other women subjected to such an operation that the classical abdominal replacement operation described does not interfere with the normal progress of labor and the uterus returns to its anterior position following delivery.

The author's findings and conclusions are summarized as follows:

Retrodisplacement of the uterus may be responsible for low abdominal and pelvic discomfort, uterine bleeding, and dysmenorrhea. These symptoms are amenable to relief by pessary intervention. The importance of complicating conditions in the pelvis in the production of a taxpayer's most not be underestimated. Such complicating lesions were found in 93 per cent of the cases reviewed.

EXTERNAL GENITALIA

Held, E Radiological Treatment of Primary Cancer of the Vagina (Le traitement radiologique du cancer primitif du vagin) *Gynéc et obst*, 1935, 32 491

Held notes that primary cancer of the vagina is of relatively rare occurrence in comparison with cancer of the female generative organs in general. At the Gynecological Clinic of Geneva, 10 primary cancers of the vagina were found among 338 cancers of the female generative organs observed in the period from Jan 1, 1925, to Dec 31, 1934. Most of the vaginal cancers were of the pavement-cell type. Few of them were adenocarcinomas. Nine of the 10 cases were treated by radiotherapy. In 1 case intravenous injections of radium emanation were given. In the earlier period, radium alone was used. It was applied in tubes in 1 or 2 treatments to give a total dosage of more than 4,000 mgm-hr. Since roentgen-therapy has been employed in addition to radium, 2 radium tubes containing 15 mc each are placed in the vagina for one hundred and forty-four hours to give a total dosage equivalent to 4,320 mgm-hr, and an intra-uterine tube (25mc) is left in place for the same length of time. The radium is filtered by 15 mm platinum. The vaginal tubes are covered also by 5 mm of cork so that the radium is approximately 7 mm distant from the vaginal walls.

In some cases the roentgen therapy is given prior to the radium treatment as it reduces the size of the vaginal growth and facilitates the placing of the radium. The roentgen treatments are given over 6 fields, 2 abdomino-inguinal and 4 lumbosacral. Each field receives 7 or 8 treatments of 220 r. The treatment factors are 185 kv, filtration with 2mm Cu and 1mm Al, a distance of from 50 to 70 cm, and irradiation for from fifty to sixty minutes. As a rule 2 treatments are given daily.

Of the 9 cases treated with radium alone or with both radium and the roentgen rays, a "cure" was obtained in 5. In 2 it lasted more than five years, in 1 for three years, and in 2 for less than a year.

Alice M. Meyers

MISCELLANEOUS

Salvini, A The Action of Female Sex Hormones on the Calcium of the Blood (Azione degli ormoni sessuali femminili sulla calcemia) *Ginecologia*, 1935, 1 1099

The author reports his experimental studies on the action of follutin, lutein, and prolactin on the blood calcium in the rabbit.

Using seven groups of animals, he first estimated the normal blood calcium values in milligrams per cent for each group and then administered the hormonal preparation intramuscularly and intravenously at various intervals, in various doses, and for various periods of time. Blood-calcium determinations were made during and after each series of injections.

The results showed that the follicular and lutein preparations produced a definite hypocalcemia of from 0.5 to 4 mgm per cent, and prolactin produced a hypercalcemia of as much as 2 mgm per cent, which were in direct proportion to the quantity of the hormone administered. Approximately ten days after the treatments had been discontinued the blood calcium returned to normal.

In the author's opinion his findings suggest that the follicular and the luteinizing hormones have a hypocalcemic radical somewhat similar to the thyroid products which favor tissue assimilation of calcium from the blood stream, whereas prolactin from the anterior lobe of the pituitary has a reverse effect on the calcium exchange between the tissues and the blood stream.

George C. Finola, M.D.

Avella, P Treatment of Metrorrhagia by Diathermy to the Pituitary (Traitement des metrorrhagies par la diathermie hypophysaire) *Gynecologie*, 1935, 34 729

Avella states that it is now well recognized that the ovary regulates menstruation and that the secretion of the ovarian hormones depends upon the activating or stimulating action of the hormones of the anterior lobe of the pituitary gland. If the normal equilibrium of the two ovarian hormones—folliculin and lutein—is disturbed, the uterine endometrium remains abnormally congested and excessive bleeding occurs. This condition is sometimes associated with uterine fibroma. Stimulation of the anterior lobe of the pituitary gland results in stimulation of the ovarian hormone secretion and correction of the ovarian dysfunction.

Avella has found that stimulation of the anterior lobe of the pituitary gland can be accomplished most satisfactorily by diathermy treatments given with one electrode applied on the frontal bone and the other at the nape of the neck and with the use of small doses. In some cases the treatment may be applied also to the thyroid. He reports nineteen cases, with and without fibroma, which were treated by this method.

He concludes that this treatment results in the stimulation of ovarian function and is indicated especially in metrorrhagia occurring at puberty and at the menopause, which is due most frequently to ovarian dysfunction. It improves the tone of the uterine musculature and has a vasoconstricting action on the utero-ovarian blood vessels. In cases with no complicating fibroma, it controls the metrorrhagia and restores normal function. In cases of fibroma with excessive bleeding, it controls the hemorrhage, reduces the size of the tumor, and makes possible surgical removal of the fibroma under the most favorable conditions.

Alice M. Meyers

Daels, F Exteriorization of the Small Pelvis (Ex-tensionation des kleinen Beckens) *Zentralbl f Chir*, 1935, p 2469

To date, the author has carried out "exteriorization" of the small pelvis in twenty cases in order to

Under such treatment the skin of the abdomen and back receives a total of from 25 to 30 gm-hrs. and the skin of the vulva, 20 gm-hrs. in a few days. Especially in superficially growing carcinomas of the vagina and vulva the author has observed good results from this method. Parametric recurrences do not respond to any type of treatment.

Carcinoma of the body of the uterus is now treated by packing the entire uterine cavity with a large number of small radium preparations. The amount of radium employed ranges from 80 to 200 mgm., and the dose, divided into 2 treatments, from 2,600 to 4,000 mgm-hrs. In addition, because of the danger of vaginal metastases in carcinoma of the body of the uterus, a vaginal dose is given. If the condition subsequently becomes worse, total hysterectomy is done. The most common complications are irritations of the rectum. In from 1 to 2 per cent of the cases death results from sepsis or embolism.

In the period from 1914 to 1926, 1,567 cases of carcinoma of the cervix were observed. Thirty of the patients were treated elsewhere. Of the remaining 1,537 patients, 327 (21.3 per cent) remained free from symptoms after five years. These represent the absolute cures. Eighty patients were not treated and 5 were subjected to operation subsequently. Of the remaining 1,455 patients, 327 (22.5 per cent) were free from symptoms after five years. These represent the relative cures.

Only 56 cases of carcinoma of the body of the uterus were seen. Twenty-one were not treated and 35 were treated by irradiation. Nine of the patients treated by irradiation remained free from symptoms after five years. Attention is called to the great difficulty in the histological diagnosis of carcinoma of the body of the uterus. Specimens presented to the greatest authorities are often very differently diagnosed.

Finally there is a group of cases of carcinoma of the cervix and the body of the uterus in the same women. Fifty-six such cases were seen. Twenty-one were not treated and 35 were treated by irradiation. Nine (25 per cent) of the patients treated by irradiation were cured.

In conclusion the author states that it is surprising that even in such extensive and homogeneous material, statistics show marked differences in the incidence of cure for which no explanation can be found. In Sweden the material has improved as operation is now seldom performed and even favorable cases are treated by irradiation.

(VON SCHUBERT) MATTHEW J. SEXTON M.D.

Muttall, J. R. and Todd, T. F.: The Prognosis in Carcinoma of the Cervical Stump After Subtotal Hysterectomy. A Critical Analysis of Thirty-Eight Cases. *J. Obst. Gynec. Brit Emp.* 1935, 42: 460.

During the ten-year period from 1915 to 1935, thirty-eight stump carcinomas in cases in which subtotal hysterectomy was performed were seen at the Holt Radium Institute in Manchester. Fifteen of

the carcinomas were discovered either at the time of the hysterectomy or within a few months after the operation, and twenty several years after the hysterectomy. In the cases in which the lesion was discovered soon after the operation, the average time before its recognition was six months, and the longest, ten months. In those in which it was discovered after a period of years, the average interval was more than eight years, and the shortest, two years. The authors believe it reasonable to assume that in the former the carcinoma was present at the time of the operation. They designate the carcinomas found at operation or soon after it as "coincident carcinomas," and those found after a period of years as "true stump carcinomas."

In all of the cases of coincident carcinoma the indication for the hysterectomy was vaginal bleeding. Thirteen of the patients with coincident carcinoma are known to be dead. None remained free from recurrence longer than two years, and only one survived longer than three years. Of the patients with true stump carcinoma, two cannot be traced, six are dead, and twelve are alive. Four (50 per cent of those treated) survived for a period of more than five years.

Careful analysis of these cases proves conclusively that stump carcinomas are of two distinct types and should not be considered a single clinical entity. The two groups differ markedly in their clinical features and their prognosis. The coincident carcinomas represent virtually missed diagnoses with resulting inadequate surgical treatment. Their prognosis is therefore poor. True stump carcinomas have as good a prognosis as any other cervical cancers. The probable paths of lymphatic spread were removed by the hysterectomy. Moreover, as vaginal hemorrhage is a more suspicious sign after removal of the uterus than when the uterus is present, it should lead to recognition of the disease at an earlier stage than is usual in cervical malignancy.

The authors speculate regarding the discrepancies between their results and the generally accepted prognosis of carcinoma of the cervical stump. They believe that most gynecologists have had an extremely limited experience with this rare condition, that the prognosis is most unfavorable in cases in which an incomplete surgical procedure was carried out unwittingly in the presence of the malignancy, that it is usual for the coincident carcinomas, with their extremely poor prognosis, to be included with true stump carcinomas as a single group, and that the prognosis may have been merely assumed to be poor by the proponents of total hysterectomy.

If carcinoma of the cervix is excluded clinically before subtotal hysterectomy is performed, the risk of subsequent carcinoma in the stump is slight. As in their treated cases the incidence of five-year survival was 50 per cent, the authors conclude that the possibility of death from subsequent stump carcinoma is not to be considered an important factor in favor of the universal adoption of routine complete hysterectomy.

(ROSS) R. GARDNER, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Bazán, J., and Dubrovsky, R. Pernicious Vomiting of Pregnancy (Vómitos incoercibles del embarazo) *Bol Soc de obst y ginec de Buenos Aires*, 1935, 14 702

In the past seven years fifty cases of pernicious vomiting of pregnancy have been treated at the Maternity Institute directed by Peralta Ramos. There were no deaths, and in no case was the pregnancy terminated.

The cases were all classified as of the third degree, the patients being emaciated and dehydrated and suffering from beginning nephritis and acidosis. Other causes of vomiting, such as tabes, peptic ulcer, meningitis, appendicitis, and cancer of the stomach, were ruled out.

Most patients present a combination of neuritic, toxic, and endocrine factors. Metabolic disturbances and hepatic insufficiency usually aggravate the nervous manifestations. Blood-sugar determinations indicate glycogen depletion. There is usually a decrease in the carbon-dioxide combining power of the blood which is to be regarded as a starvation acidosis rather than the cause of the toxemia.

In sixteen of the reviewed cases the pulse rate was 100 or more. In forty-two the temperature was subnormal. Oliguria was present in all cases. Indican was present in the urine, and the acetone and diacetic acid reactions varied in intensity depending upon the degree of starvation and acidosis.

Treatment should combat (1) the causal or ovarian factor, (2) neuropathic influences, and (3) the phenomena resulting from inanition and dehydration. The chief therapeutic addition is the intravenous administration of glucose and saline solution. The use of insulin in conjunction with glucose injections hastens the utilization of the glucose.

The patient should be isolated from visitors. Neurotic influences should be combated by suggestive treatment. Gastric lavage often aids in this. When a sedative is required for sleep, chloral may be given by rectum.

WILLIAM R. MEERER, M.D.

Bernstine, J. B., and Otten, R. E. Vaccination During Pregnancy as Prophylaxis Against Puerperal Infections. *Am J Obst & Gynec*, 1936, 31 37

Active immunity was conferred to mice by means of repeated injections of vaccine. Before the vaccine was employed for the immunization of pregnant women the safety of its use was demonstrated in a series of non-pregnant women of the child-bearing period. Fifty-one pregnant women were given from three to thirteen injections of the vaccine without untoward reactions. In no case did abortion or miscarriage occur. Pre-existing conditions in these

cases, whether acute or chronic, were not aggravated by the vaccination. The fifty-one women were delivered with no fatalities. The puerperal morbidity was 5.9 per cent, whereas the combined morbidity in non-vaccinated women was 19.01 per cent. There was one stillbirth. The mother of the still-born infant was a pre-eclamptic patient with marked hypertension and a separated placenta.

The authors conclude that the described type of vaccination should be included in the prenatal care.

EDWARD LYMAN CORNELL, M.D.

Heynemann, T. Pregnancy Glycosuria and Diabetes in Pregnancy (Die Schwangerschaftsdiabetes und der Diabetes in der Schwangerschaft) *Ztschr f Geburtsh u Gynaek*, 1935, 111 149

The author first emphasizes that a sharp differentiation of the glycosuria of pregnancy from true diabetes is necessary. A diagnosis of glycosuria of pregnancy is warranted only when, with the usual diet and the ordinary manner of living, the pregnant woman excretes daily more than 0.2 per cent of dextrose. According to the author's experience, cases of definite glycosuria of pregnancy are extremely rare. Nevertheless they are of importance as it is this condition that is most frequently confused with true diabetes. The differentiation may be made by blood-sugar determinations and a single or repeated sugar-tolerance test. In both conditions the excretion of sugar is dependent upon the intake of carbohydrates. However, in the glycosuria of pregnancy there is only a slight diminution of the sugar excreted when the ingestion of carbohydrates is stopped. Moreover, in contrast to true diabetes, the excretion of sugar is only slightly reduced by the administration of insulin.

When the diagnosis of glycosuria of pregnancy is made with certainty the patient is best left untreated, i.e., should be given an ordinary mixed diet. At any rate, lessening of the carbohydrate intake should be avoided when possible, and when it becomes necessary for any reason (vulvar eczema, pruritus), care must be taken under all circumstances to prevent acetonuria. The prognosis of this form of glycosuria is definitely good. The author discusses hormone treatment which has given contradictory results and requires further study.

In diabetes, the danger of infection necessitates great caution. A frequent obstetrical complication is hydramnios. In definite diabetes the amniotic fluid contains a considerable amount of sugar. There is a parallelism between its content of sugar and the tendency toward edema. True diabetes always endangers the child. It may cause intra-uterine death or dangerous over-growth in the uterus. Intra-uterine death occurs in nearly half of

Irradiate it uniformly with radium without injuring the subperitoneal connective tissue and without the necessity of completing the irradiation within a few days. All kinds of surgical and radiological treatment of tumors of the small pelvis such as tumors of the bladder prostate ovary rectum, and bones, are possible by this method. Extra-abdominal implantation of the ureters into the rectum has also been tried out once in this manner.

Local anesthesia induced with needles from 10 to 12 cm. in length is used for a large transverse incision which is made in a curved line through all the layers of the abdominal wall and exposes the small pelvis. The layers of the abdominal wall are then divided 1 cm. above the pubic symphysis and above the inguinal canal. The epigastric vessels are ligated and divided. Division of the round ligaments at the inguinal canal increases the mobility of the peritoneum. After division of the peritoneum, pre-sacral anesthesia of the small pelvis is induced. The vesicopentoneal border is returned to the lower margin of the skin with continuous silk sutures, and small glass drains are inserted between them. At the posterior wall of the pelvis the incision extends through the peritoneum from 1 to 2 cm. below the coccyx as far as the promontory and the sigmoid mesocolon. Similarly on the left side, it extends from the intestine to the lateral angle of the skin wound. The parietal peritoneum of the posterior pelvic wall is sutured to that of the anterior pelvic wall and the skin to the lowermost border of the incised posterior peritoneum.

If the rectum is infiltrated by cancer an artificial anus may be formed high up at the time the exteriorization is done. Also if necessary hysterectomy may be performed, tumors of other organs of the small pelvis removed, or the ureters implanted into the rectum. However because of the usually exhausted state of the patient, it is better to limit the operation to the exteriorization of the small pelvis.

In nineteen of the author's twenty cases healing took place by primary intention, but in the twentieth case the patient died with symptoms of septicemia

two days after the operation. In the latter metastasis to the glands extended high into the abdominal cavity and necessitated making the peritoneal incision on the posterior wall of the pelvis at a higher level. As the result, a small portion of the small intestine on the right side was caught in the peritoneal suture, and at autopsy a beginning peritonitis was recognizable. This case shows that it is advisable not to lodge the posterior abdominal peritoneum too high, and perhaps also that the suture of the parietal peritoneum of the anterior abdominal wall with that of the posterior wall of the pelvis should be done before division of the peritoneum of the posterior wall in order that the latter will not be incised before the skin suture has been begun.

After the further surgical measures decided on or the irradiations have been completed, the wound cavity is allowed to heal spontaneously. Only twice was an attempt made to separate the newly formed diaphragm surgically. The patients do not demand this second operation because they are able to carry out all movements without it, even when the wound cavity is still far from being healed. After completion of the irradiations usually no more than from four to five weeks elapse before the wound is fully closed. Patients who have been treated by exteriorization of the small pelvis from the beginning have better results than those subjected to the exteriorization only after repeated extensive irradiations, when their resistance is lowered and the cancer tissue has become refractory to the irradiation. Of ten cases of the first group, recovery was smooth and complete in nine, even when extensive recurrence was present following surgical treatment and the separation of strong adhesions in the small pelvis is necessary.

The author believes that exteriorization of the small pelvis deserves to be considered a regular surgical technique, and that it will be found of value in many diseases of the small pelvis, as it has already been proved to be in the treatment of carcinomas of the cervix. The article contains twenty illustrations.

(H. R. SCHMIDT) FLORENCE ANNAN CARPENTER

cent However, as the one death occurred from tuberculosis six days after the operation, there was no operative mortality.

The good results are attributed by the author to the absence of infection and the fact that every case was treated individually with the following factors in mind the qualifications of the person who caused the perforation (physician midwife, untrained person), the site and character of the perforation, the length of time that had elapsed since the injury, the age and condition of the patient, and the conditions at the time of the perforation (possibility of infection).

On the basis of this material the author concludes that only injuries of the cervix without parametrial or peritoneal injury can be treated conservatively. In all other cases of perforation laparotomy should be performed with preservation of the uterus when possible (VON SOBERANSKI) JACOB E. KLEIN, M.D.

LABOR AND ITS COMPLICATIONS

Pettit, A. V., Garland, L. H., Dunn, R. D., and Shumaker, P. Correlation Between the Shape of the Female Pelvis and the Clinical Course of Labor. *West J Surg, Obst & Gynec*, 1936, 44, 1.

The classification of female pelvis into 4 main types on the basis of certain structural or morphological characteristics as described by Caldwell and Moley is outlined. The 4 main types are termed "gynecoid," "android," "anthropoid," and "platypelloid." The authors determined the incidence of these types in 100 unselected primiparas. They describe the roentgen technique and methods of interpretation in detail. With regard to the obstetrical significance of the various types of pelvis they draw the following conclusions:

1. In the gynecoid types the incidence of operative intervention is low.

2. In the android, anthropoid, and platypelloid groups it is increased, especially in the "pure" types of these pelvis. In the android types it is as high as 40 per cent.

3. A narrow subpubic angle is the most unfavorable single anatomical feature in the causation of difficulty in labor.

In conclusion the authors emphasize that it is not sufficient to classify pelvis only according to shape. The type of the pelvis, the size of the inlet, and the shape of the subpubic angle must also be considered.

ABRAHAM A. BEACER, M.D.

NEWBORN

Blisnjanska, A. I., Lasarevitch, A. I., and Triousse, M. W. Tubercle Bacilli in Mother's Milk and the Fate of Infants Nursed by Mothers with Open Tuberculosis (Les bacilles tuberculeux dans le lait de la femme et la destinée des enfants allaités par les mères atteintes de la tuberculose ouverte). *Gynec et obst*, 1935, 32, 505.

The authors report that at the Claire Zetkin Institute at Moscow, tuberculous women are de-

livered in a separate section and the infants are kept from contact with the mothers as much as possible. Most of the infants are also vaccinated with Calmette's BCG vaccine. Some women insist on nursing their infants. If this is done, the mother wears a mask during the nursing period and washes the nipples with alcohol and boric acid. Of twenty-seven infants completely isolated from the mother one died of tuberculosis and thirteen of intercurrent disease. Autopsies on the latter disclosed no evidence of tuberculous lesions.

Of eighty-five infants which were nursed by tuberculous mothers, 65 (78 per cent) are living and well. Forty-four of the latter are over one year of age. Ten died without evidence of tuberculosis; nine are living but are tuberculous, and one (11 per cent) died of tuberculosis. The low death rate from tuberculosis in this group is to be attributed to the excellent care given the infants by their mothers.

The question whether the tubercle bacilli are frequently present in the breast milk of women with open tuberculosis has not been definitely answered. Of thirty-three of the authors' cases, the bacilli were found in examination of smears in only one, and by culture in one, but inoculation of guinea pigs with the milk of these thirty-three mothers gave a positive result in ten cases, including the two positive by other methods. However, the discharge of tubercle bacilli in the milk is not constant, as a positive result may be obtained at one time and a negative result at another time by the same method of inoculation. In only three cases with positive results from animal inoculation did the animals show typical generalized tuberculous lesions indicating a virulent organism. In the seven other cases the animals died with atypical symptoms and lesions similar to those produced by inoculation with tuberculous ultravirus.

In one of the three cases in the first group the patient did not nurse her child. Of the two children nursed by the mother, one (vaccinated with BCG) is living and well at the age of two years and the other died at the age of five months from scarlet fever, with no evidence of tuberculosis demonstrable at autopsy. Of the children in the seven other cases in which the tubercle bacilli found in the milk were not typically virulent for the experimental animals, five are living and well at the age of two years or over (one of these was nursed by the mother only five times), and two died, one of an intercurrent infection with no evidence of tuberculosis demonstrable at autopsy, and one of meningitis of an unknown type (no autopsy).

The authors state that these findings do not justify the conclusion that tuberculous mothers may nurse their infants without danger in all cases. However, the milk itself does not appear to be the chief source of infection. Infection by contact is of more importance, and the question of whether a tuberculous mother should care for her infant depends chiefly upon her ability to give it proper hygienic care and take proper precautions to protect it from infection.

ALICE M. MEYERS

the cases. The danger to the child is of course especially great when there is a tendency toward coma. With regard to the possibility of relieving diabetes in the presence of pregnancy particularly in the second half of pregnancy the author states that improvement is possible but can never be expected with certainty.

In conclusion Heynemann reports the cases of eight women with diabetes, only one of whom went through pregnancy and labor without complications under intensive treatment. This series of cases shows how poor the prognosis is for the child. In every case of serious diabetes, abdominal cesarean section is to be considered because, in addition to the danger to the child, the danger of coma is increased. The author rejects the theory that every pregnancy associated with true diabetes should be interrupted. He states that a close watch of the patient and the administration of definite amounts of carbohydrates and small doses of insulin are necessary. Very careful treatment is required especially in the puerperium. In serious cases the patient should not nurse her child. In cases in which there have been attacks of coma before the pregnancy interruption is indicated as there is little chance of the birth of a viable child. As a rule in such cases the operation should include sterilization. After the sixth month interruption is no longer to be considered. In some cases the observation of the patient and determination of the indications require close cooperation of the gynecologist with the internist.

(KIEHLER) JOSE W. BEEBEY M.D.

Parish, T. M. A Thousand Cases of Abortion. *J. Obst. & Gynec. Brit Emp.* 1935, 42, 1107.

Abortion is increasing in frequency. The chief factor responsible for the subsequent morbidity and the mortality is illegal interference with pregnancy. As a rule such interference is determined by poverty. The law has failed to prevent the self-induction of abortion, and the problem, which is one of preventive medicine, must be reviewed from this aspect, consideration being given to the changed economic and social conditions of the present day. Early admission to the hospital of all cases of abortion would decrease the incidence of sepsis and prevent not only the deaths from hemorrhage but also the prolongation of morbidity due to anemia.

In non-infected incomplete abortion, operative evacuation of the uterus, while it slightly increases the morbidity considerably decreases the time of morbidity. Therefore operation should not be delayed unduly if there is any doubt of the completeness of the abortion.

In expert treatment of infected incomplete abortion the unnecessary prolongation of the morbidity following conservative treatment and the risk of increasing the incidence of morbidity by active treatment are avoided. Treatment of the infected uterus by injections of sterile glycerine is of value in aiding resolution and preventing spread of the inflammation. Every precaution must be taken to

reduce manipulation and the use of instruments is an infected uterus to the minimum in order to avoid the risk of spreading the infection to the blood stream, where its course is uncontrollable. Antiseptical serum seems to be of little value in the treatment of established septicemia although it appears to be of benefit if used prophylactically. The mortality of abortion is due chiefly to sepsis following illegal interference and is therefore preventable.

J. THORNTON WINDHAM M.D.

Gerhardt, L. I. Observations Regarding Perforations of the Uterus and Their Treatment Based on the Material of the Obstetrical and Gynecological Section of the General State Hospital in Lemberg During the Last Five Years (Fünfe Bemerkungen über Durchstossungen der Gebärmutter und ihre Behandlung auf Grund des Materials der geburtshilflich gynäkologischen Abteilung des staatlichen allgemeinen Krankenhauses in Lemberg im Laufe der letzten 5 Jahre) *Gest. polska*, 1935, 14, 67.

The author's statistics include sixteen cases of uterine perforation. In twelve cases the perforation was caused by a physician and in three by a midwife. In one case its cause could not be determined. Of the twelve perforations caused by physicians, only two were caused by gynecologists. It may therefore be concluded that the majority of such perforations are caused by physicians without special and technical training.

The author reports the cases in detail. None of the women were between twenty and thirty years of age, five between thirty and forty and two under twenty. Six were primiparas and ten were multiparas. Seven were operated upon within six hours after the perforation and the others after from eight to twenty hours. In two cases there was a six weeks' pregnancy in six cases, an eight weeks' pregnancy in five cases, a twelve weeks' pregnancy in two cases, a sixteen weeks' pregnancy and in one case, a twenty weeks' pregnancy.

In eleven cases the uterus was injured in an attempt to interrupt pregnancy in 4 cases, in the removal of tumor remaining after abortion and in one case, in the evacuation of a vascular mole. In four cases the perforation was caused by a finger dilator in three, by a Winter forceps and in 1, by a curette. In nine cases the perforation was in the cervix in six, in the anterior wall of the uterus and in one in the posterior wall. Injury of the os uterum occurred in only two cases, and the intestines escaped through the perforation in only one.

In four cases the perforation as situated after the removal of abortion material through the opening. Supravaginal hysterectomy was done in seven cases and total hysterectomy in one case. In two cases exsplanatory (laparotomy) was performed and the tissue left after abortion was removed through the vagina. Two cases were treated conservatively.

Of the fourteen patients treated surgically only one died. The total mortality was therefore 7 per

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Turner, G. G., and Saint, J. H. Intravenous Pyelography in a Series of Cases After Transplantation of the Ureters. *Brit J Surg*, 1936, 23: 580

The authors report the findings of intravenous pyelography with uroslectan after transplantation of the ureters into the bowel in cases in which the pathological condition was of a non-malignant nature.

The outstanding change in the kidneys and ureters was dilatation. In only one case did a kidney and its ureter appear perfectly normal. Four kidneys showed a normal structure but the corresponding ureters were slightly dilated. The remaining seven kidneys showed hydronephrosis of varying degree, and the corresponding ureters of five of them were greatly dilated. In the two others no ureteral shadow was seen. In the first three cases the density of the shadow of the right kidney increased progressively in the second and third roentgenograms which were made one half hour and one and a half hours respectively after the injection, indicating that the uroslectan was being excreted into the lumen of the kidney at a quicker rate than it was escaping into the bowel and that therefore some obstruction of the ureter was present. However in only one of these three cases was the obstruction sufficient to prevent escape of all of the dye from the kidney into the bowel at the end of six hours after the injection, as a faint shadow of the upper calices and ureter was seen in the roentgenogram made at that time.

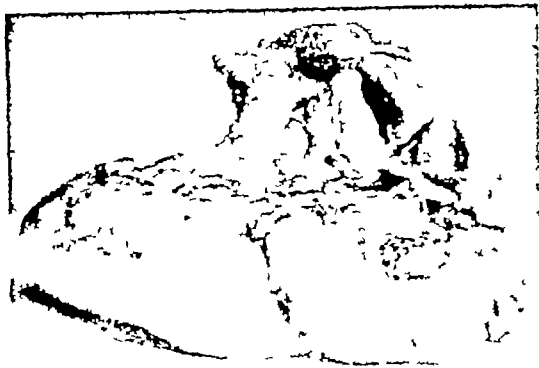
It is known that dilatation of the upper urinary tract may be the result of either obstruction or infection or both, but the regularity of the dilatation shown in the uroslectan pyelograms of these cases points to obstruction as the major causative factor.

In every case the original transplantation consisted in embedding the ureter in the wall of the bowel without the use of an indwelling ureteral catheter. Whether the slight obstruction demonstrated was caused by too thorough embedding of the ureter or was cicatricial the result of a mild infection at the site of the anastomosis is not known. A contributory cause may have been kinking of the ureter where it entered the bowel.

J. SIDNEY RITTER, M.D.

Thomas, G. J., and Barton, J. C. Ectopic Pelvic Kidney. *J. Urol*, 1936, 100: 107.

An ectopic kidney is a kidney that is fixed within the bony pelvis or across the spine and derives its blood supply from adjoining large vessels such as the iliac arteries. The development of an ectopic kidney may occur before the eighth week of embryonic life because at approximately that time the normal kid-



An ectopic pelvic kidney with three extrarenal pelvises which join to form one ureter.

ney obtains its permanent blood supply from vessels well up the abdominal aorta. The permanent blood supply of the ectopic kidney is derived from primitive vessels arising from the iliac vessels.

According to reports of recent years, ectopic kidney is found in 1 of 822 autopsies and 1 of 547 urological examinations. The condition is bilateral in about 6 per cent of the cases. In about 25 per cent, it occurs on the right side and in about 60 per cent on the left.

Pelvic kidneys may be a menace to pregnancy and require removal before delivery. The kidney may be displaced into the chest cavity and may herniate through the inguinal canal. Hypernephroma and tuberculosis may occur in ectopic kidneys.

The diagnosis may be made by pyeloureterography by either the retrograde or the excretory method. Approximately half of the cases of pelvic kidney require surgery.

The treatment is nephrectomy if the other kidney is normal. No normally functioning pelvic kidney should be removed unless it interferes with the growth or function of other organs. In some cases a kidney above the iliac crest may be anchored in the usual position. The simplest approach is extraperitoneal. The incision is made laterally through the abdominal wall and the peritoneum reflected inward.

Hawthorne, A. B. The Embryological and Clinical Aspect of Double Ureter. *J. Urol*, 1936, 23: 18-19.

Double ureters have been classified as:

1. Complete, with two pelvises on the same side, one above the other and draining by separate ureters with two openings into the bladder.

MISCELLANEOUS

Kjellbom Mordén, S.: *The Fate of Our Eclamptic Patients in Subsequent Pregnancies and Labors* (Das Schicksal unserer Eklampsikranken in späteren Schwangerschaften und Geburten). *Nord M f Lægevidensk* 1935, 60, 72.

In 1930 the author was able to report the follow-up of 193 women who had suffered from eclampsia, impending eclampsia, and albuminuria. Of these, 130 (67.3 per cent) were found to be symptom-free, 58 (30.1 per cent) had albuminuria or other disease symptoms, and 5 (2.6 per cent) had died of kidney disease or apoplexy. From this material 83 cases which might possibly have been complicated by chronic nephritis were discarded. Of the 110 women without such a complication, 100 (84.7 per cent) were found to be symptom-free at the time of the follow-up examination. In 10 patients (9.1 per cent) albuminuria and cardiac vessel symptoms were present in various combinations. Five of these women had been under observation for more than two years. In this group there was no mortality. The author was able to prove that the secondary prognosis is no worse in cases of eclampsia than in cases of other forms of intoxication of pregnancy. Conditions were least favorable in cases of the more severe nephropathies in which the disease had begun a long time before delivery. It was shown that the kidney of pregnancy is capable of producing a chronic disease condition with a picture similar to that of nephritis (in some cases even a chronic hypertension).

The author attempted to determine the course of subsequent pregnancies and births after eclampsia and whether an eclampsia which has been survived may be considered an indication for therapeutic abortion. He made a careful investigation of 6 pregnancies occurring in 48 women who had previously suffered from eclampsia and were treated at the Women's Clinic of the University of Oslo. A new pregnancy was found at the follow-up examination of 9 of these women and reports concerning 53 subsequent pregnancies were obtained from the 39 others. Of the latter 11 had had 13 normal pregnancies without recurrent symptoms. Four women had had 9 subsequent pregnancies with recurrent intoxication of pregnancy in 5. Fifteen women who had had 7 subsequent pregnancies had had a recurrent toxicosis of pregnancy in every one of the preg-

nancies. Finally in the cases of 9 women, kidney and vascular symptoms (hypertension) had existed from the very beginning of every subsequent pregnancy and 9 of these there was a recurrent toxicosis of pregnancy.

Of the total 53 pregnancies which were followed up, 30 (57.8 per cent) were complicated by a recurrent kidney of pregnancy. In 12 of these the symptoms of intoxication appeared early before the thirty-second week of the pregnancy. One patient died of apoplexy during a subsequent pregnancy three and one-half years after the eclamptic pregnancy at the age of thirty-nine years. Autopsy revealed sclerotic kidneys (Schrumpfniere). Retards developed in 2 patients. In 3 cases there was premature separation of the normally implanted placenta. In 1 of the latter the woman entered the hospital nine months after the eclampsia, the separation of the placenta in the twenty-fourth week of pregnancy and died of atony following vaginal section. Thirty-nine deliveries occurred spontaneously. In 4 cases premature delivery was induced, and in 4 cases cesarean section was performed. Of the 47 children, 36 were born alive and well developed, and of these 35 were born at term. Eleven children were born dead, most of them were macerated.

Eclampsia which has been survived constitutes a certain risk for further pregnancies, nevertheless this risk is not so great that the induction of abortion is justified without further consideration. With correct hygienic and dietetic treatment of the toxemias of pregnancy many of the most dangerous symptoms of these conditions may be prevented and numerous children can be saved. The types of intoxication persisting for a long time and those which appear early in pregnancy are always dangerous.

Eclampsia, impending eclampsia and kidney disease leave chronic disease conditions behind them more frequently than has been realized. If the blood pressure has not returned to normal after an intoxication of pregnancy a new pregnancy should be interrupted. This indication is presented also by the recurrence of hypertension at the beginning of the subsequent pregnancy. If, in spite of everything, such a pregnancy persists and intoxication occurs later, premature delivery or cesarean section should be undertaken as soon as the child has become viable. In this way more children can be saved and the prospects for later health of the mother are improved. (Summary) HARRY A. SALAMAN, M.D.

sphincter, and (5) suburethral abscess, obstructing caruncle, atresia, prolapse, and neoplasm.

Incompetence of the sphincter is not always due to direct injury and does not always require plication. Proper re-adjustment of the mechanical factors to relieve the strain has often resulted in cure. Urethral stricture is common in the female. Dilatation is the only treatment necessary.

Postoperative deformities are next in frequency to strictures and due most often to attempts at plication.

In many rare forms of urethral disease roentgen study is necessary. Cystoscopy is preferable to cystography if a cystocele is present. Cystography yields important evidence regarding descensus, pelvic tumor, and abnormal configuration of the bladder. It will reveal the degree of physiological disability due to cystocele. Cystometric studies are often necessary to confirm the diagnosis. When the diagnosis is made by both the urologist and gynecologist the results of surgery of the bladder and bladder neck will be much improved.

ELMER HESS, M.D.

Schulthels, T. Contributions on Transurethral Surgery for Obstructive Changes at the Neck of the Bladder (Beiträge zur transurethralen Chirurgie obstruierender Blasenhaltsveränderungen). *Ztschr. f. urol. Chir.*, 1935, 41, 173.

In the conditions discussed disturbances of the emptying of the bladder with a nervous basis play only a minor rôle. These are (1) complete paralysis of the bladder, (2) automatism of the bladder musculature due to loss of central control, and (3) nervous dyskinesia of the vesical sphincter, i.e., hypertonia of the sphincter and disturbances of coordination during urination. Only the third group are suitable for vesical neck operations. Dossot, Rubritius, and von Lichtenberg have reported such cases.

Changes of an organic character in the neck of the bladder include (1) disturbances of the function of the sphincter muscle in the absence of gross morphological changes, e.g., sphincter sclerosis, bar formations, and prostatic hypertrophy, and (2) mechanical narrowing of the bladder neck by pathological formations: malformations, cysts, the formation of strands and cicatrices, tumors, and prostatic adenoma.

The aims in every operative intervention are relaxation of the sphincter and removal of the obstruction. The desire to restrict operation to the minimum has led to the transurethral operations. These may be divided into blind procedures and procedures carried out under visual control. In both types the tissue may be removed by (1) mechanical cutting (the punch procedure), (2) coagulation with the galvanocautery, (3) electrocoagulation, and (4) cutting with the high frequency current.

The author reviews the history of the development of the transurethral methods from the first blind transurethral incision of the sphincter by Guthrie in

the year 1836 to the use of the modern von Lichtenberg-Heinemann instruments for intervention on the neck of the bladder.

The object of the operation is correction of the disturbances of evacuation. In cases of sclerosis of the sphincter, sphincterotomy has a causal effect. In the same manner obstructing malformations, cysts, and cicatrices may be removed. In cases of true tumors only the assurance of drainage of the urine comes up for consideration. Of most interest is the transurethral treatment of prostatic hypertrophy. In advanced cases it can be of only symptomatic benefit and does not enter into competition with prostatectomy. Malformation of the prostatic urethra and the size of the prostate determine the possibilities of the transurethral operation. The author studied the changes in the prostatic urethra in 20 specimens removed at operation. In cross-section the upper part of the prostatic urethra has the form of a horseshoe with the opening posterior. In the bladder it is a vertical slit. With the change in the lumen of the urethra there occurs a change in the longitudinal direction of the urethra, especially when the middle lobe is large. In 14 of the specimens studied stretching of the lumen of the urethra in the vertical diameter predominated. These changes influence the indications and technique.

Transurethral surgery is indicated in the rare cases in which the diagnosis can be made early, cases of isolated lobe enlargements, and especially as a last resort in inoperable cases. Transurethral treatment as a substitute for cystostomy as the first stage of a 2 stage prostatectomy as recommended by Schneider is to be rejected. On the other hand the formation of a suprapubic fistula and delay of the electrolysis until the general condition has improved are occasionally indicated. After successful resection the fistula will close spontaneously. Transurethral operation is contra-indicated for large adenomas because swelling of the glandular tissue always narrows the lumen again. Because of the operative and postoperative bleeding, large, very vascular, soft prostates are not satisfactorily operated upon by the transurethral route. Electrolysis is contra-indicated in all acute inflammations of the gland and in complications demanding an open operation, such as abscess and diverticula.

In the technique the author supplements the well-known procedures of Heinemann. Because of the cross-section changes in the adenomatous urethra the widening is always done in the small diameter. Therefore, after removal of the middle lobe, the instrument is rotated into the horizontal diameter. The operation is never attempted without clinical control. Because of the possibility of vesicorectal reflux over stretching of the bladder must be avoided. Conduction or general anesthetics are necessary. Careful hemostasis and the introduction of an indwelling catheter after the operation are of importance. In 28 cases a suprapubic fistula was formed. In 10 it had closed by the time the patient left the hospital.

2. Incomplete or cleft ureter with two upper ureters joining to enter the bladder by one ureter and one bladder orifice. The information may be anywhere above the bladder.

The author discusses the embryological development of the kidneys, ureters, and bladder. The two types of double ureter are shown to arise from two different anomalous processes. The incomplete type arises from splitting of the ureteral bud as, or after it arises from the wolffian duct (Fig. 1). This normally divides to form the superior and inferior major calyces. The most common site of splitting is in the upper third of the ureter. One branch may end blindly. The complete type of double ureter arises from the formation of twin ureteral buds (Fig. 2). The halves of the kidney are separate or fused, depending on the distance separating them. This determines also a single or double blood supply. The lower bud reaches the bladder first and is drawn cranially and laterally with bladder growth. This causes crossing of the ureters. The upper may join the vas deferens, ejaculatory ducts, female urethra, or the vestibule, depending upon its delay in reaching the bladder floor.

Double ureters are more liable to disease than normal ureters. Fewer than 20 per cent are free from disease. The diagnosis has been simplified by excre-

tion pyelography. However the diseased segment may not excrete sufficient sodium solution to cast a shadow. Unaffected segments are considered to secrete equally.

The treatment of double ureter is the treatment of the accompanying surgical lesion for the ectopic supernumerary ureter: complete or partial ureterectomy with nephrectomy or heminephrectomy as indicated.

GRANT J. THORPE, M.D.

BLADDER, URETHRA, AND PENIS

Crabtree, E. G. Brodney, M. L., Kostall, H. A. and Mueselner, R. R.: Roentgenological Diagnosis of Urological and Gynecological Diseases of the Female Bladder. *J. Urol.* 95: 25, 51.

The female bladder is thinner walled than the male bladder. Its capacity is usually estimated at from 250 to 300 c.c.m. Roentgen examination shows its lower border to be slightly below the upper border of the symphysis. Its dome is loosely supported by the urachus and lateral fascial ligaments, and its posterior surface is loosely supported by the cervix. Its fixation is most pronounced about the trigone, but nowhere is its anchorage particularly firm. The authors believe that general weakening and over stretching of the perineum by laceration, particularly of the perivaginal fascia, are the most important injuries in the production of decesses.

Cystometric studies of the normal bladder of the nulliparous women show that, in the lying position, the sensation of the desire to void begins with a pressure of from 3 to 5 mm. of mercury increases to a pressure of 10 mm. on complete filling at from 600 to 700 c.c.m. and voiding occurs on the addition of from 10 to 15 mm. of voluntary abdominal pressure. In the sitting position these figures are increased by 10 mm. and the sensation of fullness occurs at a pressure of from 15 to 25 mm. On complete filling at the pressure is from 20 to 25 mm. and is increased by the voluntary abdominal pressure to 30 mm. In spite of the increased intravesical pressure in the sitting position, the bladder will usually hold 100 c.c.m. more fluid. Voiding is due chiefly to voluntary abdominal pressure.

Many urologists have advocated a combined urological and gynecological study of the female bladder in cases of birth-canal injuries. Such a study is made in many clinics. In others, urological study is secondary. There is abundant evidence that gynecological operations are performed by surgeons who are not aware of the bladder disabilities.

Lesions in the female urethra may be demonstrated quite readily by roentgen examination with the mental injection of lipiodol or a similar heavy fluid. Roentgenograms should be made in both the anterior posterior and the oblique views.

Mentioned in order of decreasing frequency the urethral lesions are: (1) sphincter injury with relative incontinence; (2) urethral stricture; (3) deformities of the urethra following gynecological operations; (4) nerve lesion atony or spasticity of the internal



Fig. 1. Early branching of ureteral bud with the formation of an incomplete double ureter and pelvis.



Fig. 2. The formation of two buds in the lower end of the wolffian duct. Two separate ureters and pelvises, each capped by mesonephric cells (Broadbent).

ing, and (4) uremia. Early diagnosis may enable the physician to save the child's life.

Liberal administration of fluids, free use of transfusions, prevention of acidosis with dextrose, conservation of body heat, and limitation of surgical trauma to the minimum (sharp dissection, rigid hemostasis) will lower the mortality of radical surgery of the upper urinary tract even in the cases of very young children. More conservative surgery may be employed for the young than for adults. Ether given by the open drop method is the anesthetic of choice. Low ectopic kidneys are best approached by the transperitoneal route. Nephrectomy is the preferred procedure.

Renal resection may be done if only one-half of the reduplicated kidney is infected, otherwise nephrectomy is indicated. Nephropexy may be done for abnormal mobility. Polycystic kidneys are usually best left alone. Solitary cysts should be resected unless the entire organ is destroyed. Heminephrectomy may be done for horseshoe kidney. To prevent fatal shock, large renal fluid collections should be decompressed by a two-stage operation. In cases of abnormal insertion of the ureter into the kidney pelvis ureteropyeloneostomy should usually be done, but in some cases nephrectomy may be indicated. A ureterocele should be split wider with the cystoscopic electrode or by open incision through the bladder. Ureteroheminephrectomy or transplantation of the ureter to the bladder is indicated for ectopic ureteral opening. Blind-ending ureters should be excised if a cystic mass occurs. Stricture should be treated by dilatation. If it is at the ureterovesical junction, it may require incision through the cystoscope or open bladder, whereas if it is at the ureteropelvic junction, pyloroplasty or permanent nephrostomy may be necessary. In cases of aberrant vessels obstructing urine by compressing the ureter, division of the vessels is indicated. In some cases nephrectomy may be necessary.

GILBERT J. THOMAS, M.D.

Thomas, R. B., and Bayne-Jones, S. Report of the Committee for Survey of Research on the Gonococcus and Gonococcal Infections. *Am J Syphilis*, 1936, 20 Supp.

This report is presented in a 175-page supplement to the *American Journal of Syphilis*. All of the English literature, most of the literature of France and Germany, and many articles from the literatures of other countries for the years 1930 to 1934, inclusive, and the information gained from personal interviews and correspondence with active workers in fields of research dealing with the gonococcus are reviewed and analyzed.

The subjects considered include the characteristics, morphological phases, staining reactions, cultural requirements, and chemistry of the gonococcus, antigenic and serological reactions, and the modes of transmission, types, laboratory diagnosis, and old and modern treatment of gonococcal infections.

THEOPHIL P. GRAUER, M.D.

Martin, C. F., and Bacon, H. E. Lymphogranuloma Inguinale or Lymphopathia Venerea. *Internat Clin*, 1935, 4, 250.

The authors state that inflammatory rectal strictures which occur especially in women are most frequently the result of a perirectal lymphangitis initiated by the specific virus of lymphopathia venerea, and that esthiomene and chronic elephantiasis or anorectal syphiloma are part of the same affection. The condition was first described in detail by Durand, Nicolas, and Favre in 1913. In the same year Heiner reported eighteen cases.

Lymphogranuloma inguinale or lymphopathia venerea is defined as an infectious disease, usually of venereal origin, caused by an unknown virus. In the male it is characterized by a somewhat insignificant initial lesion which is followed by suppurative inguinal adenitis. In the female, as the result of perirectal or anovulvar lymphangitis, the initial lesion is followed by stricture of the rectum, abscess, fistulae, or chronic anovulvar ulceration (esthiomene). The disease is most frequent in the colored race, and more common in males than in females. It is said to be caused by an ultramicroscopic virus. Dowe states that the infection apparently confers immunity. In 1925, Frei introduced a specific cutaneous test for the disease. The authors state that one negative test does not rule out the condition with certainty.

The method of preparing the Frei antigen is described in detail. One-tenth cubic centimeter of the antigen is injected intradermally, and the site of the injection examined from forty-eight to seventy-two hours later. A positive test is characterized by a red, hard papule surrounded by an erythematous ring. Ordinarily, male patients with the disease who present inguinal buboes will show a positive Frei reaction if tested one week after the onset of the adenitis, although as a rule the positive reaction is not obtained until after from two to eight weeks. In the presence of a recent syphilitic process and during the institution of anti-syphilitic treatment the Frei test may be temporarily negative.

The frequency of rectal stricture and the rarity of inguinal adenitis in women are explained by a study of the lymphatic drainage of the vagina. The converse in males is explained by the anatomy of the lymphatics. That the disease is transmitted by coitus has been confirmed by many, but accidental infection of surgeons has been reported. The incubation period is irregular and therefore confusing. In the male, two periods are recognized. The first, between coitus and the primary lesion, varies from three to fifteen days, while the second, between coitus and the occurrence of adenitis, varies from ten to thirty days. The initial lesion ranges from the size of a pinhead to that of a split pea. It is painless and heals without cicatrization. The papular type is most common. Adenitis is manifested by discrete swellings which coalesce. Perforations are not infrequent, and a serosanguineous or puruloid secretion is discharged. The histological picture of adenitis and esthiomene is described.

The postoperative complications are the same as those of prostatectomy. Phlebotomy is more severe than after prostatectomy. The author cites various operative and postoperative complications which he collected from the American literature. He emphasizes the danger of delayed hemorrhage which necessitates, in addition to internal medication, renewed electric coagulation or possibly open operation.

Statistics on the results of 158 operations in 70 cases treated in von Lichtenberg's clinic are presented. These were cases in which previous treatment had been unsuccessful. Fifty-two of the patients were cured or considerably relieved and 10 died. The author attributes only 3 of the deaths directly to the operation. In Germany 187 cases treated with the von Lichtenberg Heynemann instrument have been reported. Good results were obtained in 136. It is still too early to discuss the end results.

(Hans W.) JOHN W. BRYAN, M.D.

Barringer, B. S.: Inguinal Gland Metastases in Carcinoma of the Penis. *J Am U* 41: 1936, 66

Of 100 cases of carcinoma of the penis, metastases were found in the groin in 37. From a study of the records of these cases, the author concludes that surgery and irradiation have proved of little value. He urges early removal of the growth on the penis including 2 cm. of uninvolved tissue, early amputation biopsy of the inguinal glands and external irradiation combined with the implantation of radon seeds through an incision and under vision.

Donald K. Howe, M.D.

GENITAL ORGANS

Kirschner, M.: Comments on the Treatment of Prostatic Hypertrophy (Bemerkung zur Behandlung der Prostatahypertrophie). *Munchen med Wochenschr* 935: 2, 83

The author calls attention to the fact that the transurethral electrocoagulation or electrocoagulation which has been featured so prominently during the last few years is also associated with danger. It must be borne in mind that a certain percentage of prostates cannot endure the slightest intervention, not even the introduction of a retention catheter. In the author's 146 cases in which only catheterization was done there were 23 deaths, a mortality of 16 per cent. In 42 cases treated by electrocoagulation there were 5 deaths (a mortality of 12 per cent) and these occurred in cases that were considered no longer operable by radical methods. This is not surprising as only the most favorable cases were selected for radical operation. Nevertheless it is significant that the percentage mortality was 3 times as great in the cases treated by electrocoagulation as in those in which the perineal operation was done. Moreover, it must be borne in mind that a certain percentage of cases in which a diagnosis of benign hypertrophy of the prostate is made are cases of prostatic car-

cinoma. In the author's cases the incidence of carcinoma was 8 per cent. That electrocoagulation cause prostatic carcinomas to become rapidly fulminant is understandable.

In the 100 radical operations performed by the author in the last five years there were only 4 deaths. Of 246 patients with prostatic hypertrophy 150 (61 per cent) were considered unfit for radical operation. Of these, 42 were treated by electrocoagulation, 53 by the formation of a suprapubic bladder fistula, and 55 by catheterization only. The so-called catheter life can be rendered relatively harmless by proper precautions. Inflammation of the testicles can be prevented by preliminary resection of the vas deferens.

In conclusion the author reviews the advantages of his technique for the perineal operation which can be carried out rapidly and completely after a preliminary intravenous injection of scopolamine under pressure. Worthy of note was the fact that he found no long umbilical, no urethral stricture, and practically no urinary incontinence in any of his cases. (Max Bodde) MATTHEW J. SEEVER, M.D.

Spence, A. W., and Scovren, E. F.: Gonadotropic Hormones in the Treatment of Imperfectly Virginal Testes. *J endoc*, 923, 179, 1935

Spence and Scovren have treated thirty-three cases of cryptorchidism by intramuscular injections of "pregnyl." The patients ranged in age from four to twenty-six years. Pregnyl consists of the gonadotropic hormones present in pregnancy urine and is physiologically similar to the gonad-stimulating principle present in the anterior lobe of the pituitary gland. In the reviewed cases biweekly injections of 500 rat units were given. Of twelve cases of bilateral cryptorchidism, both testes descended in six and one testis descended in four others. In two cases there was no response to the treatment. Of twenty-one cases of unilateral cryptorchidism, the testis descended successfully in thirteen and failed to respond in eight. The length of time the treatment was continued ranged from one to fourteen months.

The authors conclude that gland therapy of some kind should be tried in all cases and surgical interference should be resorted to only when this treatment fails.

THEOPHIL P. GRANT, M.D.

MISCELLANEOUS

Campbell, M. F.: The Surgical Treatment of Anomalies of the Upper Urinary Tract in Children. *J Am U* 41: 936, 106, 93

Anomalies of the urinary tract occur most frequently in the upper portion of the tract. Anomalies of the upper urinary tract are important because (1) the renal reserve is diminished, (2) the kidney is displaced or malformed, (3) there is urinary obstruction, and (4) there is an abnormal discharge of urine. The obstructive uropathy produces hydronephrosis and pyuria. The chief symptoms are (1) persistent pyuria, (2) masses in the region of the upper tract, (3) a urinary discharge from an ectopic open-

There is no specific treatment for lymphopathia venereum and no curative treatment for rectal stricture. The authors state, however, that their cases of inguinal adenitis responded well to intravenous injections of sterilized Frei antigen. Beginning with 0.1 c.c.m. of antigen, the dose was increased every second day until 1.0 c.c.m. was given. Antimony and potassium tartrate and Fusedin caused no improvement. Several other drugs tried were found to be of little value. Surgery is considered the best for inguinal adenitis and rectal stricture.

FRANK M. COCKRAN, M.D.

Hofbauer, J.: The Surgical Importance of Lymphantiasis—the So-Called Fourth Venereal Disease; Morbus Durand-Nicolas-Favre (Die chronische Bedeutung der Lymphantiasis—sogenannte 4. venereale Erkrankung Morbus Durand-Nicolas-Favre) *Beitr. Klin. Chir.* 1935 62 332

The author reports three cases of the so called fourth venereal disease, Durand Nicolas-Favre disease (also called inguinal lymphogranulomatosis). To prevent misunderstanding, he suggests the term "lymphantiasis" which indicates the nature of the condition. The disease is a highly contagious sexual infection which was unknown in Europe until the World War. It was brought there by black colonial troops. To date, its cause has not been determined but from the pus of the bubo a virus has been obtained which has a marked affinity for the lymph system and causes marked changes in the lymph nodes. Its spread also occurs by way of the lymphatic route in which it produces thrombosis and closure of the lymph vessels.

Three stages are recognizable:

1. The beginning of the disease. The point of entrance is usually the genitals, but extragenital infection has also been observed. At times the infection presents the picture of a herpes-like rash, balanitis, or urethritis.

2. After from two to three weeks a unilateral or bilateral tender enlargement of the regional lymph glands occurs. At first the enlargements are palpable individually but soon they merge to form a single

mass and suppurate. The skin over them is colored, first livid and then brownish, and becomes thinned. The glands empty their contents exteriorly through fistulas. In men, the inguinal glands are affected as a rule, while in women the glands in the small pelvis are usually involved and the pus gravitates to the pelvic floor and appears as an abscess about the rectum. The Frei reaction is positive.

3. The sexual organs, the penis and scrotum or the large and small labia become enlarged and the skin over these parts and often over the entire perineal region undergoes an elephantiasis-like thickening. Rectal disturbances occur with blood, pus, and mucus in the stools, and frequently there is stenosis in the affected part of the rectum causing difficulty in defecation.

The histological picture is especially characteristic in the second stage. On the basis of this the disease is classified with the infection granulomas which do not respond to antibiotic treatment. It is much more common in women than in men. In the differential diagnosis, buboes following soft chancre, tuberculosis, leos, actinomycosis, leprosy, genital granuloma, and perirectal abscesses with or without fistula formation and of variable origin must be considered. The Frei test confirms the diagnosis. This consists of the intracutaneous injection of 0.1 c.c.m. of diluted pus from the bubo, sterilized at 60 degrees C. When the disease is present a hyperemic area around a wheel or vesicle appears within forty-eight hours. In normal individuals the reaction is negative.

The disease cannot be influenced by internal medication. Early radical removal of all the affected glands followed by X-ray and quartz lamp treatment is recommended. Spontaneous healing may occur. In the third stage, removal of the skin with the elephantiasis-like involvement is accomplished best by surgical diathermy. In rectal stenosis, resection is the best method of treatment if it is possible, but on account of the friability of the intestinal wall and the close adhesion of the wall to the surrounding tissues, this procedure is often found to be more difficult than in rectal carcinoma.

(BOSS) LEO A. J. RYER, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Green, W. T. Osteomyelitis in Infancy. *J. Ped. Med.* 11, 1911, 105, 1915

In a study of ninety-five cases of osteomyelitis in infants under two years of age the author noted certain fundamental differences from osteomyelitis occurring in older children. In infants osteomyelitis is more common than in children from two to twelve years of age. Of the cases reviewed it was caused by the streptococcus hemolyticus in 63 per cent and by the staphylococcus aureus in 30 per cent. The total mortality in the reviewed cases was high, 23 per cent, but in the 30 cases treated during the last five years there were only two deaths, a mortality of 6.6 per cent.

In infants, wounds heal rapidly after operation, permanent closure being obtained usually in three months. In the ninety-five cases reviewed there were only six instances of sequestration, and recurrences were rare. Complete healing, both clinical and roentgenological, was the rule and, as proved in thirty-one of forty-one cases checked by end-result study. Deformities were noted in five of the forty-one.

The differences in osteomyelitis in infants as compared with osteomyelitis in older children are explained by the fact that streptococcal infections result in less destruction than staphylococcal infections, and the fact that, because of the minimal amount of cortical bone at the metaphysis in infants, infection which starts in the metaphysis is able to spread readily to the subperiosteal space with early soft tissue swelling and without destruction of the shaft.

The systemic manifestations of osteomyelitis are frequently severe and precede the local manifestations. In 55 per cent of the reviewed cases there was a history of antecedent infection. Half of the antecedent infections were respiratory infections. Local swelling soon appears. Roentgenograms seldom show the lesion until from seven to twelve days after the onset, but are of value in ruling out other types of bone and joint changes. Deep abscesses, septic joint conditions, scurvy, and syphilis must be considered in the differential diagnosis.

The mortality of acute osteomyelitis in infants may be reduced by bearing in mind the fact that the prime consideration in the treatment is the child rather than the lesion. Supportive treatment, immobilization, and poultices are indicated until the general condition improves and the abscess becomes well localized or palpable. After it has become localized the soft tissue abscess should be opened widely, the wound packed with petrolatum gauze,

and the part immobilized. Dressing should be done first after ten days and then at weekly intervals.

(HUGH C. GAY, M.D.)

Fuss, H. Hereditary Osteopsathyrosis (Die erbliche Osteopsathyrose). *Deutsche Zeitschr. f. Chir.* 10, 1915, 270

Osteopsathyrosis has long been considered a definitely hereditary disease. According to Bauer, the skeletal changes (abnormal fragility of the bones), blue sclera, and otosclerosis are to be ascribed to a simple gene mutation and the disease picture is therefore to be regarded as a polyphenous manifestation of a pathological gene.

In reviewing the literature the author was able to trace 89 family trees. Of the approximately 1,000 persons included in these family lines, osteopsathyrosis was found in 515. The condition acts as a dominant according to the laws of heredity. The families may be divided into 2 groups: (1) those in which only skeletal anomalies were observed, and (2) those in which blueness of the sclera was more or less definitely associated with fragilitas ossium and deafness.

In the first group were 29 families with 210 persons. Of the latter 123 were diseased—67 males, 32 females, and 24 whose sex is unknown. Fourteen families could be traced for several generations. In 10 families with 31 diseased members the condition was familial although the parents were apparently healthy. In 5 families with 23 diseased members, saltus occurred, the disease appearing in a grand father and grandchild, an aunt and a niece, and a male and female cousin.

In the second group were 60 families with about 800 members. Of the latter, 392 were affected—186 males, 186 females, and 17 whose sex is unknown. One hundred and forty-eight had blue sclera and fragilitas ossium, 142, blue sclera only, 60, blue sclera, fragilitas ossium, and deafness, 20, blue sclera and deafness, 11, deafness only, 0, fragilitas ossium only, and 2, fragilitas ossium and deafness. Blue sclera occurred alone in 142, fragilitas ossium alone in 0, and deafness alone in 11. Blueness of the sclera was therefore the only sign which occurred frequently alone. Fragilitas ossium occurred practically only in association with blue sclera but, on the other hand, was sometimes absent in the presence of blue sclera. Deafness, even in combination with the other manifestations, was relatively rare. In 60 per cent of the cases the manifestations in the child were the same as those in its parents. In 39.2 per cent the symptoms changed. In the presence of blue sclera the fragilitas ossium disappeared in about 24.3 per cent of the cases and appeared later in 14.8 per cent. Frequently the different variations in the

manifestations in the same family tree occurred simultaneously. Deafness occurred in 26 of the 60 families. More careful study disclosed osteclerosis and sometimes labyrinthine deafness. The difficulty in hearing often continued through several generations.

In a review of the entire material it was found that in 60 of the 60 family trees the hereditary factor was undeniably dominant. Healthy parents had healthy children and affected parents always had only affected children. Dominance was evidenced also by the occurrence of the disease in half sisters and half brothers whose common parent was affected. In extensive family trees the ratio of diseased to healthy children was about 1:1.

In 22 families the condition appeared in the brothers and sisters of parents who were unaffected. The discrepancy may be explained as follows: The ratio of the deviating lineal series to the apparently dominant lineal series was 15:14 in Group 1 but 7:53 in Group 2. Therefore, in Group 2 deviating family trees were much less frequent than in Group 1. However, as recognition of the manifestations of the disease is considerably more certain in Group 2 than in Group 1, this fact indicates that the apparent deviation from the dominant inheritance—especially in the older cases—was due to insufficient clinical observation.

In no case could a sexual influence on the inheritance be determined.

(HILGNER) JOHN W. BROWN, M.D.

Hanka, H.: Experimental Osteodystrophia Fibrosa
(Ueber experimentelle Osteodystrophia Fibrosa)
Frankfurt Monat. f. Path. 935, 48, 7

It was found possible by the parental administration of glucose, ammonium chloride, and lead acetate, to produce a change in the growing bones of rats, rabbits, and guinea pigs which is characterized by the increased formation and degeneration of bony tissue, replacement of the marrow by fibrous tissue and spontaneous fractures. The severity of the changes varied. The metaphyseal regions of the large tubular bones was the part most often affected. Given in excessive doses, vitamin D produced no damage, and vitamin A only slight damage.

Of all known bone diseases, these experimental osteopathies resemble most closely osteodystrophia fibrosa. A close relationship to rickets is to be rejected, and the experimental osteopathies cannot be identified with Moeller-Barlow disease. It is probable that the changes produced by excess of a vitamin dosage cannot be considered osteodystrophia fibrosa.

The development of such bone changes could not be prevented by the administration of thymus extract. The administration of thyroxine alone gave rise to peculiar changes in the zone of cartilage proliferation which have not been recognized heretofore.

The most important rôle in the development of the experimental osteopathies seems to be played by acidosis of the blood. Accordingly, there is a very close chemometabolic relationship to von Reck-

linghausen's osteodystrophia fibrosa. The far reaching parallels between these experimental findings and those of other investigators on the one hand and experimental and clinical hyperparathyroidism on the other indicate that the adenomas of the parathyroids in von Recklinghausen's bone disease are not the primary cause of the condition but are their origin in metabolic changes. However, in the course of the condition a vicious circle results and the parathyroid "tumors" assume the dominant rôle. A truly compensatory significance in the work of Erdheim is certainly not to be ascribed to the parathyroid adenomas.

With this conception it becomes possible to explain many clinical peculiarities and the inconsistency of the results of treatment of von Recklinghausen's disease (removal of the parathyroid tumor). Whether, in certain cases, treatment influencing the metabolism toward the establishment of an alkalosis and the administration of thyroxine can bring further improvement is a question that awaits clinical proof. (HILGNER) FLORENCE A. V. CAMPBELL

Marri, P.: Articular Staphylococci (Stafidiosi
con articolare). *Policlinico Roma*, 935, 42, 22
case 642

Marri defines articular staphylococci as a micro-acute or chronic infection with a staphylococcus pyogenes strains of attenuated virulence which produces granulomatous vegetations of the synovial membrane. The special importance of this form lies in its clinical differential diagnosis particularly from tuberculous fibro adhesive synovitis with granuloma, hypertrophy of the perarticular fat and moderate effusion, and the true infectious arthritis (pyoarthrosis and streptococci). The latter which are being reported with increasing frequency are similar to staphylococci both macroscopically and microscopically. The joint infection has some affinity also to the rare cases of staphylococci of the urinary tract and the skin and subcutaneous tissues. Although the literature is meager and the clinical picture and treatment have not been thoroughly studied, articular staphylococci cannot be extremely rare. However, Marri was able to find the record of only one case similar to his own—a case reported by Bolognesi in 1926. Bolognesi considered his case unique with regard to the site of involvement (the knee) and called attention to the pathological resemblance of the condition to fungous lesions of the joints.

Marri reports a case of staphylococci of the knee and discusses particularly the pathologic changes and differential diagnosis. He considers the mechanism of infection in his case characteristic. The patient stubbed his great toe, on which there was a chronic ulcer and on righting himself felt a slight pain in the knee. Acute arthritis set in the following day. When arthrotomy was done four weeks later the entire membrane was found to be greatly thickened, succulent, and reddish gray. The exudate was gelatinous. The histological diagnosis

was subacute hyperplastic arthritis with marked mucoid degeneration and slight suppurative necrosis. A hemolytic staphylococcus pyogenes aureus was grown from the exudate.

An accurate preoperative diagnosis can be made on the basis of three factors: the clinical history, bacteriological examination of the aspirated exudate, and by far the most important, the roentgenogram which remains practically normal. Histologically also the condition can be differentiated from other chronic hyperplastic inflammations. The vegetations are composed entirely of large mononuclear cells. Epithelioid and giant cells are absent. Mucoid degeneration is not a differential characteristic.

The article includes roentgenograms and photomicrographs and is followed by a bibliography.

M. I. MOSE, MD

Haggart G. F. and Allen, H. A. Painful Shoulder. Diagnosis and Treatment with Particular Reference to Subacromial Bursitis. *Surg. Clin. North Am.* 1935 15: 1537

This article is based on a review of 300 consecutive cases of painful shoulder observed during a period of six years. In 79.5 per cent of the shoulders the pain was found to be due to pathological changes in or related to the subacromial bursa and tendons of the short rotator muscles. In 2.7 per cent the cause was arthritis, in 8 per cent myofibrositis, in 1.7 per cent dislocation of the acromioclavicular joint, in 1.6 per cent, a bone tumor, in 1.3 per cent tuberculosis or syphilis, and in 2.5 per cent metastatic carcinoma.

Injury to the supraspinatus tendon varying in degree from a slight tear to complete rupture is the most common cause of industrial shoulder disability and is the etiological factor underlying pathological changes in traumatic subacromial bursitis. Tendon necrosis and calcification leading to subacromial bursitis may be caused by a single major injury or repeated minor injuries.

Painful shoulder due to subacromial bursitis is of the following types: (1) acute subacromial bursitis, (2) chronic subacromial bursitis, (3) chronic adhesive subacromial bursitis, with or without calcification, and (4) rupture of the supraspinatus tendon. The characteristic symptoms are described and the differential diagnosis is discussed.

The characteristic symptoms are described and the differential diagnosis is discussed. For the treatment of acute subacromial bursitis the author prefers either exploration of the bursa and drainage of the calcified material or the injection of novocain into the bursa. Of 25 patients operated upon and followed for the past seven years, none has developed a recurrence of symptoms. While the injection of novocain has been extremely helpful in relieving pain, the patient treated by such an injection may be more susceptible to future attacks as the calcified deposit is not cured out.

In the reviewed cases of chronic subacromial bursitis the treatment is limited to simple physical therapy and exercises.

Chronic adhesive subacromial bursitis with calcification was treated either by operation with

accompanying manipulation or by the injection of novocain and manipulation, both procedures being followed by intensive physical therapy and massage. In the cases of patients with pronounced atrophy of the upper end of the humerus care is necessary to avoid rupturing the short rotator muscles. The author therefore recommends open operation and division of the bursa before manipulation.

In chronic adhesive subacromial bursitis without calcification the method of choice is the injection of novocain to promote comfort while the patient remains in bed with the arm suspended in abduction and external rotation and the adhesions are broken up a little at a time. This treatment is followed by intensive physical therapy, particularly exercises. The average time required for recovery in the reviewed cases ranged from three to five months.

While no opportunity was afforded in the reviewed cases to treat a recent rupture of the supraspinatus tendon, 3 exploratory operations were performed with this in mind. These operations in no way lengthened the period of disability. Two old ruptures of the tendon were sutured with strips of fascia lata with satisfactory results.

The reviewed cases do not bear out the theory that symptoms from subacromial bursitis do not persist over two or three years, as in 10 cases there was a definite history of symptoms persisting for five years.

ROBERT S. RIECH, MD

Siris, I. I. Spina Bifida. *Ann. Surg.* 1936 103: 97

Siris reviews eighty-four cases of spina bifida. Thirty-seven patients were operated upon with a mortality of 3.3 per cent. Those who survived have been followed for from two months to ten years.

The author states that the presence of a slowly progressive hydrocephalus, an ulcerating tumor, and leakage of cerebrospinal fluid is not an absolute contra-indication to operation.

Cranial bifida was present in 16.5 per cent of the cases. Spinal bifida occurred in the cervical portion of the spine in 3.5 per cent, the thoracic area in 7.1 per cent, the lumbar region in 57.1 per cent, and the sacral portion in 15.5 per cent.

The author warns against deferring operation when the case is suitable for surgical treatment. He states that when intervention is deferred because of the condition of the skin covering the sacculation it should not be delayed too long beyond the period when the infant has regained its birth weight. The success of operation depends largely upon the condition of the coverings of the protrusion, the contents of the dura, the extent of the involvement of the nerve cord or brain tissue, the extent of the bony defect, and the degree of hydrocephalus.

In seven of the eight reviewed cases in which hydrocephalus was present previously it increased. The fear that hydrocephalus may follow the operative correction of spina bifida should not delay operation in cases suitable for surgery. The author favors the operation advocated by Penfield and Cone.

PAUL C. COLOSNA, MD

manifestations in the same family tree occurred simultaneously. Deafness occurred in 36 of the 60 families. More careful study disclosed otosclerosis and sometimes labyrinthine deafness. The difficulty in hearing often continued through several generations.

In a review of the entire material it was found that in 60 of the 89 family trees the hereditary factor was undeniably dominant. Healthy parents had healthy children and affected parents always had only affected children. Dominance was evidenced also by the occurrence of the disease in half-sisters and half-brothers whose common parent was affected. In extensive family trees the ratio of diseased to healthy children was about 1:1.

In 22 families the condition appeared in the brothers and sisters of parents who were unaffected. The discrepancy may be explained as follows: The ratio of the deviating lineal series to the apparently dominant lineal series was 15:14 in Group 1, but 7:53 in Group 2. Therefore in Group 2 deviating family trees were much less frequent than in Group 1. However, as recognition of the manifestations of the disease is considerably more certain in Group 2 than in Group 1, this fact indicates that the apparent deviation from the dominant inheritance—especially in the older cases—was due to insufficient clinical observation.

In no case could a sexual influence on the inheritance be determined.

(HILDEBR.) JOHN W. BRIDGMAN, M.D.

Hanke, H. Experimental Osteodystrophia Fibrosa
(Über experimentelle Osteodystrophia Fibrosa)
Frankfurt Ztschr. f. Path. 935: 42, 71.

It was found possible, by the parenteral administration of glucose ammonium chloride and lead acetate, to produce a change in the growing bones of rats, rabbits, and guinea pigs which is characterized by the increased formation and degeneration of bony tissue, replacement of the marrow by fibrous tissue and spontaneous fractures. The severity of the changes varied. The metaphyseal region of the large tubular bones was the part most often affected. Given in excessive doses, vitamin D produced no damage, and vitamin A only slight damage.

Of all known bone diseases, these experimental osteopathies resemble most closely osteodystrophia fibrosa. A close relationship to rickets is to be rejected, and the experimental osteopathies cannot be identified with Moeller-Birdow disease. It is probable that the changes produced by excessive vitamin dosage cannot be considered osteodystrophia fibrosa.

The development of such bone changes could not be prevented by the administration of thymus extract. The administration of thymus alone gave rise to peculiar changes in the zone of cartilage proliferation which have not been recognized heretofore.

The most important role in the development of the experimental osteopathies seems to be played by acidosis of the blood. Accordingly there is a very close chemico-metabolic relationship to von Reck-

linghausen's osteodystrophia fibrosa. The far-reaching parallels between these experimental findings and those of other investigators on the one hand and experimental and clinical hyperparathyroidism on the other indicate that the acidosis of the parathyroids in von Recklinghausen's bone disease are not the primary cause of the condition but have their origin in metabolic changes. However, in the course of the condition a vicious circle results and the parathyroid "tumors" assume the dominant rôle. A truly compensatory significance in the sense of Erdheim is certainly not to be ascribed to the parathyroid adenomas.

With this conception it becomes possible to explain many clinical peculiarities and the inconsistency of the results of treatment of von Recklinghausen's disease (removal of the parathyroid tumor). Whether, in certain cases, treatment influencing the metabolism toward the establishment of an alkalosis and the administration of thymus can bring further improvement is a question that awaits clinical proof. (HILDEBR.) FLORENCE ARVAN, CASERITA.

Marré, P. Articular Staphylococcemia (Staphylococcus articularis). *Polioi. Roma*, 935: 41, 203, 449.

Marré defines articular staphylococcemia as a sub-acute or chronic infection with a staphylococcus pyogenes aureus of attenuated virulence which produces granulomatous vegetations of the synovial membrane. The special importance of this form lies in its clinical differential diagnosis particularly from tuberculous fibro-adhesive synovitis with granuloma, hypertrophy of the pericapsular fat and moderate effusion, and the true mycotic arthritis (sporotrichosis and streptotrichosis). The latter which are being reported with increasing frequency are similar to staphylococcemia both macroscopically and microscopically. The joint infection has some affinity also to the rare cases of staphylococcosis of the urinary tract and the skin and subcutaneous tissues. Although the literature is meager and the clinical picture and treatment have not been thoroughly studied, articular staphylococcemia cannot be extremely rare. However Marré was able to find the record of only one case similar to his own—a case reported by Bolognini in 1926. Bolognini considered his case unique with regard to the site of involvement (the knee) and called attention to the pathological resemblance of the condition to fungus lesions of the joints.

Marré reports a case of staphylococcemia of the knee and discusses particularly the pathological changes and differential diagnosis. He considers the mechanism of infection as his case characteristic. The patient stumbled his great toe, on which there was a chronic ulcer and on nighting himself felt a slight pain in the knee. Acute arthritis set in the following day. When synovectomy was done four weeks later, the entire membrane was found to be greatly thickened, succulent, and reddish gray. The erodite was gelatinous. The histological diagnosis

was subacute hyperplastic arthritis with marked mucoid degeneration and slight suppurative process. A hemolytic staphylococcus pyogenus aureus was grown from the exudate.

An accurate pre-operative diagnosis can be made on the basis of three factors: the clinical history, bacteriological examination of the aspirated exudate and by far the most important, the roentgenogram which remains practically normal. Histologically also the condition can be differentiated from other chronic hyperplastic inflammations. The vegetations are composed entirely of large mononuclear cells. Epithelial and giant cells are absent. Mucoid degeneration is not a differential characteristic.

The article includes roentgenograms and photomicrographs and is followed by a bibliography.

M. J. MORSE, M.D.

Haggart, G. E., and Allen, H. A. Painful Shoulder: Diagnosis and Treatment with Particular Reference to Subacromial Bursitis. *NYC Clin. Med. J.* 1935 15: 151.

This article is based on a review of 200 consecutive cases of painful shoulder observed during a period of six years. In 70 per cent of the shoulders the pain was found to be due to pathological changes in or related to the subacromial bursa and tendon of the short rotator muscles. In 56 per cent the cause was arthritis, in 8 per cent, myofasciitis, in 1 per cent, dislocation of the acromioclavicular joint, in 16 per cent, a bone tumor, in 13 per cent, tuberculosis or syphilis, and in 7 per cent, metastatic carcinoma.

Injury to the supraspinatus tendon varying in degree from a slight tear to complete rupture is the most common cause of industrial shoulder disability and is the etiological factor underlying pathological changes in traumatic subacromial bursitis. Tendon necrosis and calcification leading to subacromial bursitis may be caused by a single major injury or repeated minor injuries.

Painful shoulder due to subacromial bursitis is of the following types: (1) acute subacromial bursitis, (2) chronic subacromial bursitis, (3) chronic adhesive subacromial bursitis with or without calcification, and (4) rupture of the supraspinatus tendon.

The characteristic symptoms are described and the differential diagnosis is discussed.

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In the reviewed cases of chronic subacromial bursitis the treatment was limited to simple physical therapy and exercises.

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While no opportunity was afforded in the reviewed cases to treat a recent rupture of the supraspinatus tendon, 3 exploratory operations were performed with this in mind. These operations in no way lengthened the period of disability. Two old ruptures of the tendon were sutured with strips of fascia lata with satisfactory results.

The reviewed cases do not bear out the theory that symptoms from subacromial bursitis do not persist over two or three years, as in 10 cases there was a definite history of symptoms persisting for five years.

ROBERT S. RICH, M.D.

Sirls, I. I. Spina Bifida. *Ann. Surg.* 1935 103: 97.

Sirls reviews eighty-four cases of spina bifida. Thirty-seven patients were operated upon with a mortality of 3.5 per cent. Those who survived have been followed for from two months to ten years.

The author states that the presence of a slowly progressive hydrocephalus, an ulcerating tumor, and leakage of cerebrospinal fluid is not an absolute contraindication to operation.

Cranial bifida was present in 16.8 per cent of the cases. Spinal bifida occurred in the cervical portion of the spine in 5.5 per cent, the thoracic area in 7.1 per cent, the lumbar region in 57.1 per cent, and the sacral portion in 15.5 per cent.

The author warns against deferring operation when the case is suitable for surgical treatment. He states that when intervention is deferred because of the condition of the skin covering the sacculcation it should not be delayed too long beyond the period when the infant has regained its birth weight. The success of operation depends largely upon the condition of the coverings of the protrusion, the contents of the dura, the extent of the involvement of the nerve cord or brain tissue, the extent of the bony defect and the degree of hydrocephalus.

In seven of the eight reviewed cases in which hydrocephalus was present previously it increased. The fear that hydrocephalus may follow the operative correction of spina bifida should not delay operation in cases suitable for surgery. The author favors the operation advocated by Penfield and Cone.

PAUL C. COLONNA, M.D.

Mayer, L.: Further Studies of Fixed Paralytic Pelvic Obliquity. *J Bone Joint Surg* 1936, 18

Fixation of the pelvis in an oblique position is one of the major deformities following poliomyelitis. It may be due to either imbalance of the abductors and adductors of the thigh or paralysis of the trunk muscles (quadratus lumborum and obliqui abdominis) on one side. In the early stages of the condition certain muscle tests will permit the diagnosis of both types and appropriate postural treatment may produce a cure. If the muscle imbalance persists, operation should be performed before marked deformity takes place.

In cases of the first group, division of the contracted muscles, with or without the use of a fascial transplant, is effective. In cases of the second group early operation consists of the implantation of a fascial transplant under tension on the paralyzed side between the ninth rib and the iliac crest. This technique is described. The author has employed it with gratifying results in sixteen cases. It must be supplemented by the use of a suitable back brace or a spinal fusion operation. If the deformity due to muscular paralysis is marked, a more radical "spinal release" operation preceded by a period of traction is necessary before maintenance of correction by the transplant operation is attempted.

CARRERA C. GUY, M.D.

Masertitz, I. H.: March Foot Associated with Undersized Changes of the Internal Cuneiform and Metatarsal Bones. *Arch Surg* 1936, 34

The author reviews the literature on march foot or marching fracture. Persons with this condition usually complain of foot strain with the sudden onset of pain and swelling on the dorsum or forepart of the foot. As a rule tenderness is present over the junction of the middle and distal thirds of the second and third metatarsal bones. Early roentgen examination may or may not reveal a fracture. Roentgen examination ten days later discloses periosteal changes with or without a fracture line.

The etiology of the condition is still questionable. The periostitis and fracture are end-results. The author reports a case with three unusual findings: fragmentation of the internal cuneiform bone and fractures of the head and the base of a metatarsal bone. He believes that these previously unreported findings in march foot have probably been overlooked in other cases. They suggest that a disturbance of the bone calcium with increased bone fragility is an important factor in the development of the disorder.

CARRERA C. GUY, M.D.

FRACTURES AND DISLOCATIONS

Sarroute: The Late Infections Resulting from War Fractures of the Extremities (*Les infections infectieuses éloignées des fractures de guerre des membres*). *Rev de chir* Par 1935 34 669

The author reports a comprehensive study of certain war wounded coming to Val de Grace for

treatment in the period from 1921 to 1931. The cases 200 in number were cases of bone lesions. Sarroute uses the term "calite" infection of callus in preference to the term "chronic traumatic osteomyelitis" in order to differentiate the condition from the hematogenous disease from which it differs widely. He discusses the clinical picture in detail, describing the following 4 types:

1 The simple late flare-up, characterized by tenderness and swelling and sometimes by abscess formation, which is very frequently observed from two to twenty years after the injury. Healing often follows simple drainage with the removal of a foreign body or sequestrum.

2 Multiple infections flare-ups of varying severity sometimes with spontaneous elimination of sequestra.

3 The osteophytic sinus, which often follows a flare-up, but may have existed from the original injury.

4 The intra-osseous abscess, which becomes manifest several years after the injury and corresponds to Brodie's disease.

It is necessary to investigate carefully the patient's record, the original injury, the early treatment, and the interval history and to make a thorough general physical examination before making a diagnosis and instituting treatment. Careful roentgenographic studies are essential although not infallible. Two findings are almost constant—increased bone formation or hyperostosis and decalcification, which at times give the bone a mottled appearance. Irregularities, sinuosities, sequestra, foreign bodies, and cavities are all to be seen. The author refers to Broca's illustrations, finding himself to careful descriptions with no pictures.

He discusses the pathological anatomy in detail, stating that the bony lesions are of many varieties but all are produced by the same mechanism, namely rarefaction, death elimination, change and repair. The cortical lesions are characterized by rarefaction and condensation in many forms. Areas of necrosis with the formation of sequestra of various sizes surrounded by areas of sclerosis are the usual findings.

The author feels that periosteum has no osteogenic power in the adult. When it is stripped away there is exuberant ossification into the soft parts. He believes that the old infected callus with sclerosis and abnormal circulation may be slightly injured, with a resulting flare-up of the whole process.

He discusses the local and general complications, and goes into the question of treatment in great detail. The principles consist in adequate removal of all infected and damaged bone leaving only healthy bone to heal normally. All cavities should be unroofed and made flat to allow the soft parts to cover the surface. This is of course not applicable, and each case must be judged individually. Many authorities are cited, and there is a short presentation of 90 case histories.

RABAL B. STIMON, M.D.

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3

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Fontaine H., and Schattner R.: The Experimental Basis of Arterectomy (Les bases expérimentales de l'artériectomie). *J de chir* 1935, 44, 320

Arterectomy was introduced into the treatment of obliterated arteries by Leriche in 1915. It has never been generally performed and, by some surgeons, has been condemned. Fontaine and Schattner report an experimental study on nineteen dogs which they made to compare the vascularization of a limb subjected to arterectomy with the vascularization taking place below an arterial thrombus.

The thrombus was always produced on the right side and the arterial resection performed on the corresponding vessel on the left side. Both procedures were carried out at the same time, and the same length of vessel on each side was used. In the dog, the aorta divides into three branches, the right and left common femoral arteries and the aorto iliac trunk. The common femoral arteries in turn divide into the superficial and deep femoral arteries.

After the operation in the authors' experiments the dogs were kept under observation for a period ranging from a few days to one and a half years. In the cases of the animals which died during the period of observation postmortem injection of the vessels was done and in the animals which survived, thorotrast was used as the contrast medium.

In two dogs the superficial femoral arteries and in ten, the common femoral arteries were used. In seven the common femoral arteries were operated upon and the common aorto iliac trunk was ligated at the same time. The findings after each procedure are shown by roentgenograms and drawings.

The authors conclude that the circulation in limbs below thrombosed vessels is much poorer than the circulation in limbs subjected to arterectomy. The explanations offered for the difference are these:

1. The arteries below a thrombus are thrown into a state of spasmodic contraction.
2. Removal of a segment of vessel will cause acceleration even more pronounced than that produced by lumbar sympathectomy.
3. Secondary arteritis frequently occurs in the vessels below a thrombus, interfering with an already diminished circulation.

In the experiments reported claudication, trophic ulcers, and gangrene occurred only on the thrombosed side. In man arterectomy performed for arterial obliteration causes intense vasodilatation favors the establishment of collateral circulation and prevents extension of the arteritis toward the periphery. To determine the probable effects of resection in advance arteriography is essential.

From their clinical experience and experimental results the authors conclude that arterectomy has a firm physiological basis and Leriche's faith in the procedure is justified.

MARSH WELLS & POOL, M.D.

LYMPH GLANDS AND LYMPHATIC VESSELS

Graver L. F.: Clinical Manifestations and Treatment of Leukemia. *Am J Cancer* 1935, 26, 114

One remarkable feature of leukemia is the great variation in the length of its course. The condition may be fulminating or extremely prolonged and relatively benign. Occasionally myelocytic leukemia runs a course of ten years or longer but a long course seems somewhat more common in lymphocytic leukemia.

In many cases of chronic lymphocytic leukemia a careful inquiry will reveal the fact that, for a considerable period before the recognizable stage of the disease, there had been a chronic enlargement of the lymph nodes. All patients presenting a chronic lymphadenopathy, whether or not it seems to be explained by an infection should be watched for an indefinite term in order that more may be learned regarding the insidious early stages of leukemia.

In the earlier stages of the leukemic process, biopsy of an apparently representative lymph node may fail to give even a clue as to the nature of the disease. While biopsy is helpful, its result must be only one of the factors considered in the diagnosis. In many cases the history and repeated physical examinations furnish a much clearer conception of the process.

In a case in which biopsy of a lymph node led to a diagnosis of giant follicular lymphoma the condition was found at autopsy to be lymphatic leukemia. In a case in which a diagnosis of lymphatic leukemia was made, autopsy revealed Hodgkin's disease. In a case in which the diagnosis of Hodgkin's disease, autopsy showed the condition to be lymphatic leukemia.

On the borderlines of leukemia, lymphosarcoma, and Hodgkin's disease is a large collection of ill-defined processes whose exact nature and relationship to these diseases are unknown.

In children, lymphocytic leukemia may be accompanied by a bulky mediastinal tumor perhaps composed arising from the thymus. As such tumors and the leukemic process in general of these young subjects may be extremely susceptible to irradiation, great caution is necessary in treating them.

Occasionally an adult with chronic lymphocytic leukemia may have a large intrathoracic tumor.

Among the most puzzling leukemic processes are those which begin in young subjects under the guise

of lymphosarcoma and at first promise good and possibly lasting regressions following irradiation treatment, but later change unexpectedly and rapidly into an acute type of leukemia with a speedy fatal termination.

True erythremia is coming more and more to be regarded as an analogue of the leukemic process. Several cases of combinations of erythremia and myelocytic leukemia and of transitions from one to the other have been reported. Some believe that most cases of myelocytic leukemia begin with erythremia.

The author recommends Heublein's method of prolonged low-intensity irradiation of the entire body. In the use of this method the entire bodies of four patients in a ward are irradiated simultaneously with the tube at a distance of 5.4 or 7.3 meters from the body. The treatment time varies between sixteen and twenty hours daily. In the cases of leukemia reviewed by Craver the doses employed varied from 44 to 375 r and the length of time the patients remained in the ward varied from two to twenty-nine days. The intensity of treatment was in the order of 0.3 to 1.7 r per hour, depending on the distance between the tube and the patient and on the filtration employed. With such low intensity irradiation the patients did not suffer acute reactions. The doses were not sufficient to cause erythema or loss of hair. In some cases of lymphocytic leukemia and pseudoleukemia the disease as a whole responded better. Regressions were observed in several instances during the time the patient remained in the treatment ward. There seemed to be a smoother improvement in the blood count and the general condition than is the rule with local irradiation. In myelocytic leukemia the blood counts responded fairly well, but the enlarged spleens were not satisfactorily reduced in size. Therefore the first treatment in a typical case of

myelocytic leukemia with a large spleen should be local irradiation directed to that organ to bring about simultaneously general improvement and reduction in the size of the spleen, the enlargement of which is frequently the cause of symptoms. At a later period, when the blood count indicates the need for more treatment, and while the spleen may still be small, it may be advantageous to give small doses of general irradiation. In still later stages, the condition has become refractory to the usual methods of local irradiation. The Heublein treatment may also be of value.

MANUEL E. LICHTENSTEIN, M.D.

Schiavone, G.: Lymphogranulomatosis in Childhood (Linfogranulomatosis en la infancia). *Revista d'Rosario*, 1935, 25, 1005.

Schiavone gives a complete illustrated clinical report of a case of Hodgkin's disease of four years' duration in a boy eight years old. The right cervical glands formed a mass the size of a fetal head, and the axillary, inguinal, and mediastinal glands, as well as the liver and spleen, were somewhat enlarged. The von Pirquet test was negative. The diagnosis was confirmed by biopsy. The parents refused radiotherapy, and the child died soon after leaving the hospital.

The author, writing from Paraná, believes that Hodgkin's disease is unusually infrequent in Uruguay. He notes the following distinguishing characteristics of the disease in children: more rapid involvement of the glands, almost constant splenomegaly, infrequency of pruritus, a peculiar "dirty" tint to the skin, a grayish color of the mucous membranes, rarity of leucopenia and eosinophilia, the presence of myelocytes, frequency of the "typhoid" form, absence of osseous localization, and frequent termination by bronchopneumonia.

A bibliography is given. M. F. MORSE, M.D.

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Hunter W: The Treatment of the Post Hemorrhagic State. *J Obst & Gynec Br Com* 1933 43: 85

The author defines the post hemorrhagic state as the condition which follows the rapid external loss of a quantity of blood sufficient to cause signs and symptoms. For the purpose of this discussion he assumes that the hemorrhage has stopped and its cause has been treated. The sequence of events following a single severe external hemorrhage is, briefly as follows:

Blood with all of its constituents is lost from the body. The total blood volume is reduced and the blood pressure correspondingly lowered. In an attempt to restore the fallen blood pressure, the arteries and veins contract upon the diminished volume of blood. If this mechanism of arterial constriction fails or is only partially successful, the circulation is retarded and the capillary pressure falls. Fluid is attracted by the plasma protein from the tissues into the capillaries, giving rise to an increase in the fluid volume of the blood at the expense of the tissue fluids. Consequently tissue dehydration of various degrees results. If the circulation is still inefficient, anoxemia, tissue starvation, and a degree of acidosis are liable to develop.

Prophylactic treatment includes, first, control of the hemorrhage and second, the prevention of factors aggravating hemorrhage such as exposure, fatigue, pain, deprivation of food and fluid, and toxemia.

Curative therapy is directed toward restoration of a normal and efficient circulation, the elimination of anoxemia, restoration of the capillary walls to their normal state and acceleration of the metabolism to restore the functions of the various organs of the body.

To replace the lost fluid, the oral and rectal routes are usually favored in the milder cases and the intravenous route is used in the more severe cases. The intravenous administration of a hypertonic solution of glucose is not advised because of the tendency of such solutions to dehydrate the already dehydrated tissues further. Osm solutions are preferred to crystalline preparations because it seems more likely that they will be retained in the blood vessels. A more than a pint of fluid is given intravenously because this amount is sufficient to take the patient over crisis. To maintain the increase in the blood volume during the stage of recovery, fluid is given by accessory routes such as the mouth and rectum. The administration of fluid by the intravenous route is except of requirements

may prove definitely harmful by increasing transudation from the capillaries. To aid the absorption and assimilation of glucose, an intramuscular injection of insulin is given routinely. It is started as soon as the infusion is begun and it is administered in the proportion of 1 unit of insulin to 5 gm. of glucose.

Since the blood pressure sometimes fails to rise to an appreciable extent after intravenous injections, vasoconstrictor drugs should be given in all advanced cases. Ephedrine hydrochloride in 1 cc doses has been found to give good results. A smaller amount of fluid administered with a vasoconstrictor is usually more efficient than a larger amount given alone.

Numerous methods have been tried for replacing the cellular deficiency in traumatic anemia, but the transfusion of whole blood by the citrate method is probably the most satisfactory procedure for routine use.

Sedatives are nearly always necessary to prevent further exhaustion. No drug is more efficient than morphine.

Cardiac stimulants should not be used. If adequate venous filling of the heart is insured and a sufficient supply of oxygenated blood is available for the maintenance of myocardial function, the heart will work efficiently without the aid of drugs.

The foot of the bed should be raised. Warmth, rest, and quiet are essential. The author has not yet discovered an efficient method for giving oxygen.

In the milder cases the patient is placed in a warm bed with the head at a slightly lower level than the trunk. Glucose water and glucose lemonade are given at frequent intervals by mouth and supplemented if necessary by a pint or more of tap water given by rectum or a pint of a 5 per cent glucose solution in water given subcutaneously. Small doses of morphine are administered and after the cessation of fluid, adrenaline in 10-minute doses or ephedrine is used if required.

In the more severe cases, treatment is carried out along the lines just described. If the depressed blood pressure remains below 90 mm. of mercury, as in the cases shown in figures 1 and 2, as soon as possible the solution used has the following formula: ephedrine hydrochloride 10 gm, glucose 10 gm, gum acacia 1 gm, and sufficient distilled water to make a pint. As soon as the fluid is thus freely set a vein, 10 units of insulin are injected intravenously. At this stage the bed is leveled and the head returned from the head and neck. If restlessness, recurrent a myocardial attacks, or agitating respirations persist after the infusion, preparations are made for an immediate transfusion of whole blood.

11-11-33 (REVISED, 11-11)

ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Bosse, P. War Experiences in Peace Time. The Lesson from the Reinsdorf Explosion (Kriegserfahrungen im Frieden. Die Lehren des Reinsdorfer Sprengstoffunglückes). *Deutsche med Wchnschr*, 1935, 2 1623

The author reports his experiences with 300 injured, 90 severely, in the explosion at Reinsdorf on June 13, 1931. All of the injured were brought to the hospital between 3 and 7 p.m. Bosse issued the order to have the cases treated at first similarly to those at an emergency field hospital in war time, not to operate, but to stop hemorrhage and dress and fix the injured parts. He ordered that the patients be given numbers, that an index be prepared, and that the beds be numbered. After 7 p.m. the hospital was run like an emergency field hospital, that is, only necessary operations were performed.

Only short narcosis with eunarkon was employed. Three cubic centimeters were administered intravenously rather quickly and the cannula was left in the vein. If the anesthesia was insufficient, 8 c.c. more of the anesthetic were administered. For more prolonged operations chloroform and ether were added. Up to 4 a.m. a total of 150 c.c. of chloroform and 250 c.c. of ether were administered. Eunarkon proved to be an excellent anesthetic. It rapidly induced anesthesia from which the patient awakened quickly. The only accident was the occurrence of respiratory depression after the rapid administration of 6 c.c. of the eunarkon. This condition was relieved by the intravenous injection of 15 c.c. of coramin and 1 c.c. of lobelin.

For ligation and suturing, only carofil was employed. This has advantages over catgut. It is absolutely free from bacteria, it is strong, it does not knot or swell, and it is absorbed slowly. A small bakelite container measuring 6 by 5 cm. holds from 50 to 100 m. of the suture material. Carofil is the suture material of choice in war surgery.

No Friedrich wound excision or wound toilet was carried out. The wounds were freed only of their gross contamination, and the Loehr bandage technique with unguentolan and plaster fixation was employed. Even in severely infected and complicated fractures of the leg with opening into the ankle, knee, or hip joint, in widely gaping muscle and tendon injuries, in total scalping and in the most extensive burns, the same technique was employed. Formerly, Bosse was not particularly enthusiastic regarding this method of treatment, but he had not employed the fixation. Since this mass experiment he prefers unguentolan to desitin and desitinolan. Desitin forms crusts and dries the wound on account of its content of zinc oxide. It is not absorbed (as is shown by the metal shadow in the roentgenogram), and therefore cannot be used to fill body or joint cavities. It does not stimulate granulation or epithelium formation. Desitin contains only a small amount of chlorinated cod-liver

oil. Apparently the vitamin is destroyed by the chlorination. Unguentolan is raw cod-liver oil of the first pressing. An unguentolan dressing with plaster fixation is the most protective primary dressing, saves the patient later painful redressing, and produces the most surprising healing which in some cases (even in badly infected joints) occurs by primary intention and in others by the rapid formation of healthy granulations.

As a result of his experience the author questions whether the Friedrich wound excision or débridement is still necessary. Only 1 of his patients died of embolism and only 2 of them had a temperature above 38 degrees C. Four amputations were performed.

Bosse believes that in mass injuries and in war, short intravenous anesthesia is advisable. He recommends carofil for suture material, and primary dressing by the Loehr method without primary débridement of the wound.

(TRAN.) LEO A. JUNKKE, M.D.

Bingold, K. The Clinical Forms of Gas-Bacillus Infection (Die klinischen Formen der Gasbacilleninfektion). *Deutsche med Wchnschr*, 1935, 2 1727, 1767, 1800, 1887.

This is a review of more than twenty years' experience in war and peace times by a man who himself has collaborated in investigations to explain gas-bacillus infection of wounds. Of the five recognized gas-forming anaerobes, the Fraenkel bacillus, the Novy bacillus of malignant edema, the para-anthrax bacillus, the bacillus histolyticus, and the bacillus hemolyticus, Bingold describes only the Fraenkel-Welch bacillus as the most common and most prominent representative. He gives a detailed description of its form and cultivation. By his procedure it can be demonstrated even in primitive laboratories. Not even the addition of liver to the bouillon or a paraffin-oil coating is necessary. Ordinary bouillon with or without the addition of human bouillon is sufficient to make gas bacilli grow if agar is added from one to three hours after the inoculation until gas bubbles appear. This mass is then mixed with fresh bouillon and incubated for half an hour, and the scum is placed in a new tube of bouillon to which agar has been added. Even after a few passages the gas bacilli overcome the other bacteria and soon are found in pure culture.

Fraenkel and Aschoff observed the beginning of the effect of gas bacilli in living muscle. The edema preceded the muscle changes. However, there are also cases in which no destruction of muscle is observed at autopsy and only a clear bloody serous edema is found. This may be due to the elapse of insufficient time for destruction of the musculature. Bingold is opposed to the division of Thiers into a brown and a blue form, also to that of Payr into an epifascial and a subfascial form. In fact, he opposes every classification. The terms "gas inflammation," "gas abscess," "putrid gas infection," and "gas gangrene" refer only to the stages through which

the infection may pass. The author is opposed also to the view of Aschoff that death is due entirely to the effect of the toxin. He believes it is due in part also to bacteremia as it has been found that in gas gangrene bacteria enter the blood circulation to a much greater extent than in any other phlegmonous disease.

In the presence of originally ill defined disease pictures early diagnosis and early surgical treatment are made possible by examination of the blood. The author considers gas gangrene a lymphangitic sepsis although dissemination of the bacteria by way of the venous route cannot be denied. It is a striking fact that the metastatic formations may undergo spontaneous retrogression even though the disease progresses. The author emphasizes that the gas bacillus can be found in the urine occasionally in cases of bacteremia, but always in severe cases of sepsis. He describes the blood changes in great detail. In every gas edema hemolysis is manifested by bloody edema and bloody imbibition of the muscles. Whether the erythrocytes of puerperal women have a peculiar resistance to the gas bacillus, or the serum of pregnant women particularly increases the effect of the toxin is still undetermined. Dissolved blood pigment (oxyhemoglobin), bilirubin, methemoglobin, and hemaferri have been found. The blood destruction is manifested by anemia, leucocytosis with myelocytosis and lymphopenia and a chocolate brown coloration of the urine which is never observed in gas gangrene of the extremities. In addition, anemia results from gas bacillus infection of the kidneys.

In the puerperium the gas edema appears in two forms: (1) the lymphangitic form of gas sepsis and (2) gas gangrene of the uterus. The former usually follows an abortion. It may produce a local infection of the endometrium without involvement of the uterine musculature, the bacilli entering the blood stream from the endometrium. With early gynecological intervention, cure results in the majority of cases. In the second form, hysterectomy will save life only in isolated cases.

Infection of wounds with gas bacilli does not necessarily produce gas edema, even when the bacilli are present in the blood. The author therefore warns against surgical intervention on the basis of the bacteriological findings alone if other signs are absent.

Anemia was a striking finding also in war wound infections. Icterus occurred rarely and only in the form of bilirubinemia.

The author then takes up infection of the internal organs. He first discusses pylophlebotic sepsis (enterogenic sepsis). Appendicitis, in which Fraenkel bacilli were found by Loehr and Rasfeld in 70 per cent of the cases, may play a part in this condition. The infection may be caused also by the perforation

of intestinal ulcers. The author next discusses post anginal sepsis, otogenic sepsis, gas-bacillus infection of the pancreas (Broell's case) and cholecystitis from gas bacilli. The liver does not always contain gas after death from infection. The adrenals show a diminished lipid content. Gas gangrene of the lung, denied by Fraenkel, occurs occasionally. The spleen is almost never involved but the bone marrow always shows bacteria.

The author is skeptical regarding outstanding resistance of the reticulo-endothelial tissue to infection, especially gas bacillus infections.

There is no effective anti-sepsis against gas bacillus infection. Only surgery can cure. However the author gained a good impression from the ritual cal stages of Thiers in mild cases of the brown gas infection. Preventive inoculation with the Behring serum is necessary, but it must be admitted with Loehr that the quotient against the Fraenkel bacillus must be increased. The curative results of the serum are slight. (FRANK) LOEHR, NYE WELLS, M.D.

ANESTHESIA

Montana, C. N.: Oil-Soluble Anesthetics in Rectal Surgery. *Brit. M. J.* 915, 938.

In tests of various combinations of oil-soluble anesthetics for the treatment of painful conditions particularly in and around the anus the solution made according to the following formula was found to be best: procaine base 1.5 per cent, butyl para-aminobenzoate, 6 per cent, and benzyl alcohol, 5 per cent in sterilized almond oil. The painlessness of this solution on injection is due to the adequate concentration of the procaine base and the elimination of ether. The prolonged anesthetic property is due partly to the slow rate of diffusion caused by the oil and partly to the prolonged action of the butyl para-aminobenzoate. If the solution is sufficiently warmed and injected slowly anesthesia occurs almost immediately.

The advantages of this solution over the solutions tried previously may be summarized as follows:

1. Its effect is almost certain.
 2. The injection is painless if it is given slowly.
 3. There is no severe after pain.
 4. Anesthesia or hypo-anesthesia is produced for periods varying from seven to twenty-eight days or longer.
 5. Relaxation of the anal musculature is much greater and more prolonged.
 6. The preparation is comparatively non-toxic. From 20 to 30 c.c.m. may be injected without any general ill effect.
 7. Even when 30 c.c.m. are given, no local reaction is observed if the injection is performed skillfully.
- The general technique of the injection is described in detail. (SAUNDY) KANE, M.D.

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Miegeli Roentgenological and Histological Findings During the Course of Five Years in a Dog Following the Intravenous Injection of Thorotrast (Roentgenologische und histologische Befunde bei einem Hund nach intravenöser Thorotrasteinspritzung im Laufe von fünf Jahren) *Zentralbl f Chir*, 1935, p 2679

Thorotrast, as is well known, is first deposited in the liver and spleen. From there it enters the lymph nodes belonging to those organs, but some of it remains in the liver and spleen.

In the case of the dog studied by the author histological sections from the liver and spleen taken at certain intervals of time showed that in the liver there developed exactly as in hepatic cirrhosis small adenomatous nodes which were regenerative phenomena of the small biliary passages. A true injury of the liver cells was not demonstrable. In the beginning, the spleen showed a diminution of its lymphatic tissue, but it regenerated itself completely in the course of years. The lymph nodes filled with contrast media showed first necrosis and later calcification.

In conclusion, the author expresses the opinion that, as thorotrast is radio active and remains in the body for years, its use may not be entirely harmless. At any rate, the possibility that, as the result of its effect, carcinoma may develop later as in cirrhosis of the liver has not yet been ruled out.

(MAX BEHR) LOUIS NEWELL M D

O'Brien, F W. The Present Mode in Deep X-Ray Therapy (Coutard) *Radiology*, 1936, 26 1

The total dose that can be safely administered to a patient continues to remain delimited by the skin erythema the only biological index that we have despite the great strides that have been made in the field of physical measurements of the roentgen rays. On the other hand, the irradiation effect appears to depend solely on the amount of irradiation absorbed, regardless of the wave length of the irradiating beam. Therefore the record of the total number of r units prescribed or administered in a certain case is far from informative.

There are two chief methods of irradiation the one attempts to obtain the desirable effect by a single exposure or at most, a few exposures and the other by dividing the dose into fractions so as to obtain a cumulative effect. The latter has several variations one of which is the so called Coutard method. The factors in this method are from 100 to 600 kV filtration with 2 mm of zinc and 3 mm of aluminum, from 3 to 4 m, a focal skin distance of from 50 to 60 cm for lesions of the head and neck

and a focal skin distance of from 80 to 100 cm for deep lesions. Each dose is protracted by the use of a low roentgen intensity as a rule 3 r per minute, and fractionated by giving part of the irradiation in the forenoon and part in the afternoon with treatments daily. Small portals are employed preferably. The individual fractions amount to from 150 to 180 r daily (measured on the skin and not "in air"), and the entire course of therapy extends over a period of from fourteen to ninety days. A startling feature of this procedure is the production of a radiodermatitis and radiomucositis of second degree which, however go on to repair without appreciable permanent damage and with definite benefit to the patient.

In the rest of the article the author presents a chronological review of the method evolved by Coutard, and an explanation of the protracted fractionated irradiation on the cells. Disadvantages of the method are the very long time and the expenditure it requires. It is the author's belief that by increasing the roentgen intensity and thereby shortening the treatment time per session, as for example, from one hour to ten minutes these disadvantages may be partly overcome and the clinical results will remain as favorable as those obtained by strict application of the original method.

T. IRELLY M D

Quimby, E H., and Marinelli L D. A Study of Cones or Other Collimating Devices Used in Roentgen Therapy. *Radiology*, 1936, 26 16

There is a tendency, particularly in modern shock proof roentgen therapeutic installations to displace the open ports by cones or other collimating devices. The authors studied the various changes which may affect the dosage as the result of such a procedure. They investigated the secondary irradiation at the bottom of the cones, the primary filter, and the limiting diaphragm at the top of the cones and the scatter of the irradiation by the walls of the cones and the effect on the quality and tissue distribution of the irradiation beam transmitted by cones or collimating devices. The set up is a little different from the ordinary shock proof therapeutic set up inasmuch as the attachments which were cylindrical and 30 cm in length were fitted into the base of an old fashioned tube holder at a distance of 35 cm from the target. However, there is no reason to assume that different results would have been obtained except in the case without limiting diaphragms at the top of the cylinders, since in shock proof units, because of the proximity of the diaphragm to the roentgen tube most of the off focus irradiation is excluded. The source of roentgen

rays was a constant potential generator operated at 165 or 200 kv., with a primary filter of 0.54 mm. of copper and the measuring instrument mostly a mesh type ionization chamber which insures the inclusion of the very soft secondary irradiation in the measurements. Of the cylinders, four were of lead 3 x mm. thick and 5, 7, 8.8 and 15 cm. in diameter respectively and one was of bakelite 3 x cm. thick and 8.8 cm. in diameter.

The following results are of practical importance in the voltage range mentioned.

The secondary irradiation at the bottom of the lead cones is removed by 0.5 mm. of aluminum plus a sheet of paper or thin celluloid, or by 1.5 mm. of celluloid or bakelite alone. The use of a thicker layer of bakelite or other organic material, as practiced on the mouth of some cones, is discouraged because of the decrease in the relative depth dose.

The primary filter should always be at the top of the cone to prevent scattering from the copper. When lead cones of sufficient wall thickness are employed the use of a limiting diaphragm at the top of the cone is unnecessary. Moreover such an arrangement, by cutting off rays from the back and stem of the target considerably reduces the irradiation without improving the relative depth dose.

The scatter from the walls of the lead cylinders is about 3 per cent and that from the walls of the bakelite cylinder 4 per cent. With the use of the limiting top diaphragm, or when the cone is flared to fit the geometrical beam it is even less. The amount of irradiation passing through the bakelite cylinder (limiting diaphragm at top) is 17 per cent. This indicates that cones of light material may be used as pointers if the proper limiting diaphragm is provided.

The quality and tissue distribution of the irradiation beam transmitted by cones or collimating devices undergo no appreciable change.

T. L. LECHE, M.D.

Portmann U. V.: The Roentgen Ray Treatment of Tuberculosis of the Mediastinal Lymph Nodes. *Cleveland Clin Quart* 234, 2 62.

Although roentgen irradiation has come to be recognized as the most satisfactory method of treating tuberculosis of the superficial lymph glands, little attention has been directed to the treatment of tuberculous of deeply situated lymph glands, especially those lying in and about the mediastinum. This is probably due to the fact that the latter pathological process is more obscure. The author discusses the rôle of the lymphatic glandular system in tuberculous and calls attention to the frequency of involvement of the mediastinal glands. Symptoms

and signs by which such lymphadenopathy may be recognized are given consideration with special emphasis on the value of roentgen examination.

When a diagnosis of mediastinal tuberculous adenitis has been made and parenchymal lesions are absent, the administration of small divided doses of roentgen therapy according to the plan followed in the treatment of superficial lymph-node groups may reduce the size of the swollen tracheobronchial glands. The distressing cough which frequently accompanies the condition may be relieved, and a reactionary fibrosis and eventual calcification and healing in the affected nodes may occur.

The treatments should be given every three to seven days, depending upon the severity of the cough, and over a period of from two to six weeks. In the cases of children the technical factors employed have been 120 kv. with from 4 to 6 mm. of aluminum (A. U. 0.25) and in the cases of adults, 100 kv. with 14 mm. of copper (A. U. 0.16). Sternal and dorsal fields are used with the irradiation directed to the mediastinum which receives about 150 r at each dose.

The author reports several cases in detail to illustrate the effectiveness of this form of treatment.

ROBERT HARRIS, M.D.

Chernin S. A.: Studies on the Effect of Roentgen Rays upon the Interstitial Epithelium and upon the Reticulo-Endothelial Cells of the Liver and Spleen. *Acta radiol* 235, 16 611.

From three to ten days after general irradiation of normal mice with roentgen doses of from 550 to 550 r bacteriological necropsy showed the presence of an infection of the organs and heart's blood with bacteria which are normally present in the intestinal tract of mice. Local irradiation limited chiefly to the intestines with doses up to 1500 r did not give rise to a progressive enterogenous infection. Irradiation of the entire abdomen with direct exposure of the liver and spleen to suitable roentgen doses gave rise to a progressive bacteremia.

An experimental technique employed to study the rôle played by the reticulo-endothelial apparatus in the liver and spleen of the mouse in combating infection of the blood stream with *Breuxia bacilli* is described.

A histological and bacteriological examination was made of sections of the intestines of mice exposed to general irradiation. The author concludes that, after irradiation, the epithelial cells of the intestines of mice, corresponding in particular to the mucosal part of the gut, may lose the ability to retain the bacteria which are normally present in the intestinal lumen.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Konrich: The Problem of Blood Substitutes (*Zur Frage der Blutersatzmittel*) *Arch f. klir. Chir.* 1935, 152: 450

Isotonic sodium chloride solution, 2 commercial blood salt solutions, Tyrode solution, and rabbit serum without and with the addition of erythrocytes (washed out for the salt solutions) were tested for their value as substitutes for blood in over 300 experiments on rabbits. The only reliable criterion for the degree of exsanguination and therefore for the proper time of infusion was the cessation of respiration with dilatation of the pupils and abolishment of the corneal reflex, which, however, could not be awaited in all of the experiments because of its great danger to life. Because of its great dissemination, the amount of blood lost could not be evaluated. However, the average fatal loss of blood was considerably less than the Kuttner value of 3 per cent of the body weight. It varied between 1.57 and 4.63 per cent. The rapidity with which the rabbits regained the ability to sit up after the operation was regarded as a pretty fair sign of the effect of the substance infused.

In the simple exsanguinations the impression was gained that the sodium chloride solution was not of much value, that even though pupillary dilatation was never awaited, the course might have been no different without its use. The hemic salt solutions and the Tyrode solution were somewhat more effective than the sodium chloride solution, but did not differ essentially from one another in their results. On the other hand, the serum was found to be considerably better. Of 22 animals with dilatation of the pupils and cessation of respiration, 7 survived after their infusion.

This relationship of the blood substitutes remained the same on the addition of erythrocytes, which, in every instance, produced a considerable increase of the effect so that some of the animals exsanguinated to the stage of cessation of respiration remained alive. Of 5 such animals treated with serum containing erythrocytes, only 1 died. This mixture differed from whole blood in a reduction of the content of the number of erythrocytes to one-fourth.

In the exsanguination experiments in which from 4 to 6 consecutive withdrawals and replacements were carried out, the effect of the blood substitutes was the same except that the serum proved even more effective. With a 25 per cent content of erythrocytes, the latter permitted survival of the animal with about 0.7 per cent of its former amount of blood, the basis for this calculation being assumed to be 3 per

cent of the body weight. As the coagulation time seemed to be accelerated in relation to the number of the exsanguinations, the coagulation ferment was apparently mobilized to a certain extent to stop the loss of blood. The always surprisingly large amounts of hemoglobin and erythrocytes found when the animal died indicated that a delivery from the resting blood reserve of the circulation had probably occurred.

Restoration of the blood to its original state after a loss equal to 2.5 per cent per kilogram of body weight resulted in an average of fourteen days, regardless of the blood substitute used. The substitute was therefore of value only to prevent death from exsanguination. Death from exsanguination is not a cardiac death due to emptying of the heart, it is a primary respiratory death. Whether lack of oxygen, stasis of carbon dioxide, or paralysis of other functions was of most importance in its occurrence could not be determined. However, its cause depends less on the loss of erythrocytes than on the loss of serum.

The author concludes that blood substitution therapy should be used if possible in cases in which the transfusion of whole blood would be difficult because of external circumstances. As infusions may be given without a blood test, their administration is easier. However, it is still to be determined whether preserved serum is equal to fresh serum in its innocuousness and life-saving effect.

(SIEVERS) LOUIS NEUWELT, M.D.

Roussy, G., Huguenin, R., and Quoc Queyn, N.
Black Tumors of the Skin (*Les tumeurs noires de la peau*) *Presse med.*, Par., 1935, No. 92: 1808

The authors employ the term "black tumors" instead of "melanotic tumors" because the two terms do not seem synonymous. With time, the latter has lost its connotation and has acquired grave prognostic significance. The black tumors do not all have the same structure or the same evolution. It is very difficult to determine whether or not a certain black tumor is malignant or about to undergo malignant evolution.

The authors perform biopsy on all suspicious black tumors. The microscopic study is carried out in the course of operation, which is performed under local anesthesia. The specimen is taken with an ophthalmological bistoury as the use of the electric bistoury causes considerable damage to the biopsy specimen.

There are multiple types of black tumors of the skin. Among them are the nevocarcinomas or malign melanomas, the prognosis of which is invariably grave. Others are the epitheliomas which are pigmented by nearly pre-existing naevi or melanotic pockets at their original nidus. These

tumors always present the same characteristic clinical features, and the distinction of variety is practically impossible.

Recognition of the histological characteristics of the neuroectodermoma is often easy. However, the amount and distribution of the pigment is subject to great variation. Certain verrucous navi are very pigmented while certain neuroectodermomas have so little pigment that the name "achromic melanomas" has been proposed for them. Very dark areas may be near very light areas.

Electrocoagulation has been chosen by the authors for the treatment of black tumors. The destruction should have wide limits around the area of the tumor. The authors have had some fatal recurrences in cases in which the electrocoagulation was not wide enough. They are attempting to treat metastases also in this way but have not had a sufficient number of cases to warrant conclusions regarding the more extensive lesions.

KENNETH W. THOMSON, M.D.

Roger H., and Allier, J.: The Neuro-Ectodermomas: Neurogliosarcomas of von Recklinghausen, Peripheral and Central; Tubercous Scleroses of Bourneville with Sebaceous Adenomas of the Face; Cerebroretinal Angiomas of Lindau (Les neuroectodermomes, neurogliosarcomes de Recklinghausen périphériques et centraux, adénomes sébacés de Bourneville et rétinoblastomes de Lindau). *Presse Méd. Par.* 1935, 43: 3.

Under the term neuroectodermoma the authors describe the tumors of embryonal origin arising from neural or ectodermal tissue. Various other descriptive names have been given them by other workers, but Roger and Allier believe that "neuroectodermoma" is the best term as it is most inclusive and indicates the embryonal tumor formations common to all three of the clinical syndromes. In this article they attempt to show the close relationship of these conditions both etiologically and in their clinical manifestations.

Recklinghausen's disease is characterized by the presence of cutaneous fibrous tumors arising from nerve fibers. In some cases such fibromas are also found within the cranium along the cranial nerves and in a fewer number in the meninges or the cerebrium or medulla.

Bourneville's syndrome is characterized by small tubercous nodules in the lateral ventricles or brain stem associated with sebaceous adenomas around the nose and lips. The subjects are usually either epileptic or suffer from imbecility or idiocy.

Lindau's disease is characterized by cutaneous neuroangiomas (tumors of the central nervous system) (particularly the cerebellum) and the retina.

The authors point out that all three conditions are characterized by (1) cutaneous tumors ranging from abnormalities of pigmentation to pigmented tumors, (2) tumors of the central nervous system which may be nodules scattered over the hemispheres or large vascular or solid masses and (3)

retinal tumors. Retinal tumors, however, are most common in Lindau's disease.

MARCO WILLIAM FOWY, M.D.

Friedland, P.: Biological Tests in the Diagnosis of Malignant Tumors, with Special Reference to Kahn's Albumin-A Reaction (La prova biologica, con speciale riguardo alla reazione dell'albumina A di Kahn, nella diagnosi dei tumori maligni). *Pratiche Roma* 1935, 43: 203, 429.

The author describes the various biochemical tests for the presence of malignant tumors. None of them is specific. He discusses particularly the comparatively few studies on the Albumin A reaction of Kahn which consists in an increase of the globulin and a decrease of the serum albumin with absolute diminution of the serum albumin and especially of its most hydrophilic fraction, Albumin A. Optimum as to the value of the reaction for the diagnosis of malignancy range from the confidence of Kahn to marked skepticism.

Limbach carried out the test in 84 verified cases of malignant tumor and on 150 controls (including both normal persons and patients with non-malignant diseases). Of the cases of malignant tumor the results were positive in 77.3 per cent (Kahn, 81 per cent) and doubtful or negative in the remainder. The percentage of negative results was highest in the cases of cutaneous epitheliomas and next highest in those of scirrhus of the breast and sarcoma, while the incidence of positive results was highest in cases of adenocarcinoma and cases of malignant tumors of the gastro-intestinal tract, particularly salivary organs, and uterine system. Twenty per cent of the controls were positive. Among the conditions represented in the controls were normal pregnancy from the fifth to the ninth month, advanced pulmonary tuberculosis, hepatic cirrhosis, acute anemia, diabetes, osteomyelitis, and various febrile diseases. As the reaction was absent in non-cancerous patients and present in persons in good general condition it is not a simple expression of cachexia.

In 15 or 20 per cent of the test are the facts that the reaction appears early and in some cases of malignancy is strongly positive; the technique is simple, and the reaction is decisively and consistently negative in gastroduodenal ulcer, cholecystitis and benign tumors in general. It is more sensitive in cases of deep growths. The positive results in non-cancerous conditions are partly offset by the fact that these would be considered in the differential diagnosis of malignancy only exceptionally.

Therefore Kahn's reaction should not only be retained as one of the most important biological tests yet discovered of the serum of patients with cancer but should be more widely known and developed. Limbach is now trying to eliminate some of its uncertainties by performing it in conjunction with Borel's and Roda's tests for the presence of malignant growths. The former consists in the

MISCELLANEOUS

formation of a precipitate in the presence of nitric acid followed by an iodine-potassium-iodide solution. The latter is based on the combination of neutral red with the proteolytic enzymes and proteins of the serum.

Although the serum diagnosis of tumors is still far from its goal, reactions have already been discovered which in some instances clarify an obscure diagnosis or reveal the presence of a latent tumor. These studies have at least extended our knowledge of the intimate connection between the neoplasm and the organism.

The article is accompanied by tables and references.
M E MORSE, M D

Beard, H H. Cancer as a Problem in Metabolism.
Arch. Int. Med., 1935, 56: 1143.

In relation to cancer as a problem in metabolism the author discusses the carbohydrate metabolism of tumors, lipid metabolism and cholesterol, irradiation and carcinoma of the skin, and the carcinogenic hydrocarbons.

Endocrine imbalance in the pathogenesis of some types of cancer is discussed with regard to estrin, prolactin, extracts of testicle, spleen, thymus, and parathyroid gland, insulin, and extracts of adrenal cortex.

While it is difficult at present to distinguish cause and effect in the newer experimental work on cancer reviewed in this article, the following concepts are worthy of consideration by students of the problem:

1. In malignant tumors the metabolism of carbohydrate is abnormal, resulting in low respiration and high glycolysis.

2. Lipoids and cholesterol are definitely increased, the latter especially in carcinoma of the skin.

3. Massive doses of ultraviolet irradiation may produce cancerous lesions about the head of the experimental animal.

4. Hydrocarbons containing the phenanthrene group and estrin are both carcinogenic and estrogenic.

5. The chemical relationship of the bile acids, sterols, sex hormones, and carcinogenic hydrocarbons is established.

6. Injections of prolactin may inhibit the growth of some types of tumors.

7. Extracts of adrenal cortex, thymus, and spleen and insulin may also have a retarding influence on some types of experimental tumor.

8. The relation of sulphuric acid (SH) to the problem of cancer is discussed. JOSEPH K. NARAT, M D

GENERAL BACTERIAL, PROTOZOAN, AND PARASITIC INFECTIONS

Bingold, K. A Discussion of Sepsis Therapy (Krit. isches zur Sepsistherapie). *Fortschr. d. Therap.*, 1935, 11: 193, 265.

The title of this article was to have been "Advances in the Treatment of Septic and Septiform

Diseases," but was changed because of doubt as to whether it was justifiable to speak of actual advances.

To explain the various courses and characteristics of sepsis, several questions must be considered. Virulence alone does not explain them. Many observations made in animal experiments have led to erroneous conclusions as pathogenicity differs in animals and man. The "septic reaction" and the chief mechanism through which it develops, the reticulo-endothelial system, are of importance, but we have no criterion of the severity of a septic infection nor of the adequacy of the defensive processes. Neither has research yielded us any agent which is effective in human sepsis by influencing the reticulo-endothelial system. The findings of animal experiments are not applicable to human sepsis. It has never been explained how the various chemical therapeutic agents act. The antiseptic, disinfectant action of the substances is often denied and an action upon the reticulo-endothelial system assumed. The theory of adrenal failure leading to vascular relaxation has brought only disappointment in its therapeutic application. The theory of allergy does not adequately explain either sepsis or the frequency of metastasis. Exhaustion sepsis is essentially merely the end-stage of an infectious disease. Experience teaches that a completely exhausted defensive organism can recover if the septic focus is excluded. The basis of sepsis is a septic focus communicating with blood vessels. This view of Schottmueller is generally accepted. Liebermeister's teaching that several septic foci of various kinds may successively dominate the disease process has led only to confusion. It does not agree with clinical experience and it has not improved the therapy of sepsis.

Sepsis therapy is directed toward the control of the septic focus and its causative organisms. The various forms and localizations are discussed. It is stressed that there is no complete, all-inclusive schema. In general, the newer remedies for sepsis have yielded no better results. The prognosis of sepsis is favorable only when the primary focus or its metastases are amenable to surgery as, for instance, in severe tonsillar infections in which ligation of the jugular, facial, and tonsillar veins is possible. (BUETTNER) LEO M. ZIMMERMAN, M D

DUCTLESS GLANDS

Korenchevsky, V., and Dennison, M. The Histology of the Sex Organs of Ovariectomized Rats Treated with Male or Female Sex Hormone Alone or with Both Simultaneously. *J. Path. & Bacteriol.*, 1936, 42: 61.

In previous articles the effects on male rats of estrone injected alone and simultaneously with male hormone was reported.

Since females as well as males secrete both of these hormones it seemed necessary to study their action on females. The "method of weights" per-

mits an accurate estimate of variations in the size of the organs induced by the hormones. The authors report for the first time the effect of the hormones on the female preputial glands and of pure crystalline male sex hormone or its derivatives on females.

This article records the results of a histological study of the uterus, vagina, and preputial glands of female rats, the changes in the weight of which have already been reported. The rats were injected with crystalline synthetic male hormone (androsterone) and its derivatives which were prepared artificially by Runck and with crystalline estrone which was supplied by Girard.

The following abbreviated designations for the male hormone and its derivatives are used: androsterone, "male hormone extracted from urine by Ruttenandt and prepared synthetically by Runck"; diol, the fat-soluble diol derivative of androsterone prepared artificially by Runck; "w. a. diol, the water-soluble derivative of diol, which is the lithium salt of the monosuccinic ester of diol.

In a preliminary report published in 1933 Korobchewsky suggested the name "female prostatic glands" for the perineurthral glands as the former clearly indicates the nature and embryological origin of the tissue. The authors believe that experimental evidence proves the existence of "female prostatic glands." They found an experimental method of causing this rudimentary structure to hypertrophy into a comparatively large "female prostate." The histological investigations show that the microscopic picture of the developed female prostate in the rat is typical of the microscopic picture of the ventral lobe of the male prostate and that therefore the female prostate should be regarded as the homologue of the ventral lobe of the male prostate. These glands were found in 23 per cent of the rats studied.

In normal female rats, both male and female sex hormones are present. In the pregnant animal there is, in addition, the hormone of the corpus luteum. In spite of this, these glands are atrophic in normal females, and in spayed and spayed estrone-injected rats (as in the prostate of castrated male rats) can be developed into comparatively large female prostates by the injection of diol and estrone.

A histological study of the sex organs of seventy nine female rats injected with synthetic male hormones yielded the same results in the same rats as those previously obtained by the method of weights.

In ovariectomized rats the stimulating action of diol on the development of the atrophic uterus and vagina is stronger than the effect of androsterone, while its stimulating action on the female preputial glands is about the same as that of androsterone. Though its effect on the vagina and uterus is much stronger than that of either androsterone or diol, estrone alone is unable, in the doses used, to bring about the complete return of these organs to the normal state. While in normal rats extensive keratinization of the upper rows of epithelial cells is always present during estrus and leucocytic invasion occurs only at the termination of estrus, spayed rats subjected for a prolonged period with estrone in the doses used show a very variable degree of keratinization and some of them show in places slight dropical vacuolation of the epithelium with or without leucocytic invasion. There is a co-operative activity between the male and female hormones which, when suitable doses are used, can bring about apparent restoration to normal of the atrophied uterus and vagina. Large doses of diol produce moderate hypertrophy and metaplasia of the atrophic vaginal epithelium into low columnar mucous cells. While the addition of androsterone or medium doses of diol to estrone brings about a return to normal of the atrophic vaginal epithelium, which in some cases is accompanied by dropical vacuolation, the addition of large doses of diol produces an extraordinary metaplasia of the epithelium into large, columnar mucous epithelium.

In the vagina of the pregnant rat the normal mucous metaplasia is similar to that described, but the mucous "pregnancy cells" have a more regular form and disposition.

The mucification effect of large doses of diol suggests that there is a relationship between diol and one of the hormones responsible for the normal pregnancy mucification of the vaginal epithelium.

The article is illustrated with drawings and photomicrographs and is followed by a comprehensive bibliography. JOHN E. KIRKPATRICK, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

- Hereditary occurrence of enlarged parietal foramina, their diagnostic importance O H P PETER and F P PETER and F P PFENDERGASS Am J Roentgenol, 1936, 35, 1
- Osteolytic lesions involving the calvarium I P PFENDERGASS and A A. DELOFINO Am J Roentgenol, 1936, 35, 9
- Osteomyelitis of the skull A V O ICKT Deutsche med. Wchnsch., 1935, 2, 1076
- Primary tumors of the cranial bones C T GISCARD TER. Am J Cancer 1936, 26, 155 [424]
- Facial pain G H Hyslop New York State J M, 1936, 36, 91
- Lateral sinus thrombosis N O LADDA J South Carolina M A., 1936, 32, 4
- Dangerous cyst of the jaw J A SGRO-NO and A C VITTE. Bol. Soc. de cirug de Rosario, 1935, 2, 250
- Dangerous cyst of the lower jaw O K MAROTOLI Bol. Soc. de cirug de Rosario, 1935, 2, 257
- Radicular cyst of the mandible G BRADOLAN Clin. chir., 1935, 11, 924
- Deformity due to loss of substance of the mandible following osteomyelitis R H ILL and I CURTIS Ann Surg., 1936, 103, 149

Eye

- Cyclopia. M G DEE BRUCKE Arch Ophth., 1936, 15, 114
- The electrical response of the eye to light SIP J PARSONS Brit. J Ophth., 1936, 20, 1
- A reply to criticisms of my theory on the genesis of myopia. G LEVINSOHN Arch Ophth., 1936, 15, 84
- The present status of the management of myopia. J F DYORAK J Iowa State M Soc., 1936, 26, 25
- Photographically recording the phonos I J PINFERRON and T W COWAN. Am. J Ophth., 1936, 19, 44
- Magnet extraction of intra-ocular foreign bodies A W MORSE. Am. J Ophth., 1936, 19, 40
- A case of chlorosis with ocular complications J B HAMILTON Brit. J Ophth., 1936, 20, 18
- Ocular complications of cerebrospinal meningitis E B DUFFY Arch Ophth., 1936, 15, 118
- Double extrinsic ophthalmoplegia, acute superior poli-encephalitis J DEMIGUES Rev med y cirug de la Habana, 1935, 40, 695
- Pulsating exophthalmos RUETZ. Zentralbl f Chir., 1935, p. 2493
- Chronic glaucoma M K THOMPSON J Oklahoma State M Ass., 1936, 29, 18
- Acute glaucoma secondary to relapsing fever followed by uveitis. W H. ROBERTS Am J Ophth., 1936, 19, 43
- On the surgery of glaucoma mode of action of cyclo-dialysis. O BARKAN, S F BOYLE, and S MAISLER. California & West. Med., 1936, 44, 12

- The effects of mydriatics upon intra ocular tension H S GRADIS Am J Ophth., 1936, 19, 37
- Instructional hour, notes on pathology and surgical treatment B SAMUELS New York State J M, 1936, 36, 55
- A new needle holder for use in ophthalmic and other delicate surgery F H VERNHOFF Arch Ophth., 1936, 15, 111
- Cause for the removal of the eye L I MAYER Illinois M J., 1936, 60, 01
- The nerve supply to the orbicularis muscle and the physiology of movements of the upper eyelid, with particular reference to the pseudo Gräfe phenomenon. M B BRADY Arch Ophth., 1936, 15, 21
- A tick on the upper eyelid F O'G KIRWAN Brit J Ophth., 1935, 19, 659
- Notes on the pathology and surgical treatment of sympathetic ophthalmia B SAMUELS Arch Ophth., 1936, 15, 59
- Sympathetic ophthalmia and its complications, surgical treatment J I GIFFER. New York State J M., 1936, 36, 59
- Allergy in its relationship to sympathetic ophthalmia. A C WOODS New York State J M., 1936, 36, 67
- A survey of cases of sympathetic ophthalmia occurring in New York State H H JOX New York State J M., 1936, 36, 85
- A new conjunctival flap for trephining operations F H VERNHOFF Am J Ophth., 1936, 19, 46
- The carbohydrate matrix of the epithelial cell inclusion in trachoma C E RICE Am J Ophth., 1936, 19, 1
- Concomitant strabismus T AB TRAVERS Brit. J Ophth. Essay, 1936
- The management of crossed eyes in children R. G ANDERSON J South Carolina M Ass., 1936, 32, 18
- Varicella of the cornea R. PICKARD Brit. J Ophth., 1936, 20, 15
- "White ring" in the cornea J ZIPOKES Arch Ophth., 1936, 15, 112
- Bullous keratitis, a rational therapy J GREEN Am. J Ophth., 1936, 19, 16
- Fuch's dystrophy of the cornea H NEAME Proc. Roy. Soc. Med., Lond., 1936, 29, 277
- Fuch's epithelial dystrophy remarks on two cases J H DOGGART Proc. Roy. Soc. Med., Lond., 1936, 29, 230 [426]
- Local quinine therapy for some diseases of the conjunctiva and cornea E SELINGER Arch. Ophth., 1936, 15, 31
- The effect of bacterial lysate on staphylococcal keratoconjunctivitis in rabbits M M STRUMIA and H W SCARLETT Arch Ophth., 1936, 15, 47 [426]
- Corneal grafting (keratoplasty) H B STALLARD Brit M J., 1936, 1, 106
- Macular sarcoma H NEAME. Proc. Roy. Soc. Med., Lond., 1936, 29, 227

The structure and functions of the anterior chamber and Schlemm's canal. O. BARKAN. Arch. Ophthalm. 1936, 5: 101.

The aqueous: its generation, functions, and circulation. H. SHIMIZU. Arch. Ophthalm. 1936, 5: 40.

The treatment of the bony orbit by osteotomy ab externo. A report of cases. W. D. HARRISON. Arch. Ophthalm. 1936, 5: 70.

Sympathetic ophthalmia: results of treatment with diphtheria antitoxin in thirty-five consecutive cases. F. H. VANDERBEEK and S. R. LEVINE. New York State J. Med. 1936, 36: 61.

Biochemistry of the lens. V. Cytosolic acid content of the blood and urine of subjects with senile cataract. J. BELLONIS. Arch. Ophthalm. 1936, 5: 78. [C66]

An unusual vortex vein. F. J. DUKERIKOFF and T. W. COHAN. Am. J. Ophthalm. 1936, 9: 45.

Tractional lens. A. W. D'ONOFRIANO. Brit. J. Ophthalm. 1936, 20: 23.

Cataract due to dimethylphenol. W. A. MARSH, JR. Arch. Ophthalm. 1936, 5: 16.

The treatment of cataract in history. W. H. HARRIS. J. Med. Soc. New Jersey 1936, 33: 7.

Glutathione in the blood in senile cataract and other ocular conditions. D. A. CAMPBELL. Brit. J. Ophthalm. 1936, 20: 33.

The intracapsular extraction of cataract with Snodgrass's forceps. A. L. TORRES. Australian & New Zealand J. Surg. 1936, 5: 440.

Intracapsular extraction of cataract in: average practice report of 100 cases in which Verboff's method was used. B. J. BEACH and W. R. McANAMIS. Arch. Ophthalm. 1936, 5: 95.

The Kayser Fleischer ring in Wilson's disease and microcephaly. L. BOTTMAN and D. E. ROSE. Am. J. Ophthalm. 1936, 19: 26.

The surgery of the lens. E. A. BRANLEY. Australian & New Zealand J. Surg. 1936, 5: 244.

Tuberculosis of the choroid with generalized tubercular tuberculosis. F. TOONIS. Brit. J. Ophthalm. 1936, 20: 3.

Angiosarcoma of the choroid. J. D. M. CARROLL. Proc. Roy. Soc. Med. Lond. 1936, 29: 228.

A congenital retinal aneurysm. F. W. LAW. Proc. Roy. Soc. Med. Lond. 1936, 29: 234.

The localization of the retinal hole. J. A. VAN HEUVER. Brit. J. Ophthalm. 1936, 20: 39.

Subjective studies of the blind spot and nasal field. E. JACKSON. Am. J. Ophthalm. 1936, 9: 34.

Blood lipids in hyperopia retinitis. A. MAHLER and R. M. SMITH. Arch. Ophthalm. 1936, 5: 86.

Retinitis pigmentosa. A. J. CARRON. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 9: 3.

Transitory choked disk: report of a case with an eleven-year follow-up study. E. KANIN. Arch. Ophthalm. 1936, 5: 96.

Papilledema and optic neuritis: retrospect. L. PATRICK. Arch. Ophthalm. 1936, 5: 1.

Ear

Progress in otology. Some remarks of the histological material available in the field of otology. Functional examination of hearing. R. SCHWAB-SCHENK and N. LERNER. Arch. Otolaryngol. 1936, 3: 105.

Auditory function studies in an unselected group of pupils at the Clarke School for the Deaf. I. General survey of hearing acuity. R. P. GILLMAN and L. A. HARRISON. Laryngoscope, 1936, 46: 46.

Deafness: diagnosis based upon fractional testing. C. M. BROWN. New York Stat. J. Med. 1936, 36: 109.

Our deafened children and how we are caring for them. G. HARRY. Rhode Island M. J. 1935, 18: 181.

Acoustic stimulation of the lower ear by application of sound into the cavity of the middle ear. H. KOMAR, J. R. LEBLANC, and H. B. FREEMAN. Arch. Otolaryngol. 1936, 23: 30.

The vessels of the stria vascularis, with special reference to their function. J. J. BELLINGER. Arch. Otolaryngol. 1936, 23: 93.

The treatment of serous otitis. L. T. COOPER. Med. Clin. North Am. 1936, 19: 1039.

Intra-uterine and neonatal otitis. A study of seven cases including a case of otitic meningitis. F. A. HARRIS. Arch. Otolaryngol. 1936, 23: 38.

Acute otitis media. J. V. CANNADY. J. Indiana State M. Assn. 1936, 20: 7.

The treatment of acute otitis. R. E. TORRES. Science and 1935, 43: 1440.

Röntgen-anatomical studies of the labyrinth. K. WOLKE. Acta radiol. 1935, 6: 668.

Histological variations in the middle and inner ears of patients with normal hearing. L. M. FORTNEY. Arch. Otolaryngol. 1936, 23: 48.

Vertigo. A. A. CONELLI. Laryngoscope, 1936, 46: 44.

The present status of the management of petrositis. F. H. RIZZO. J. Iowa State M. Soc. 1936, 40: 20.

Petrositis: review of recent work. H. KIRCH. Proc. Roy. Soc. Med. Lond. 1936, 29: 263. [C66]

The treatment of petrositis. F. W. WATERS. Trans. Proc. Roy. Soc. Med. Lond. 1936, 29: 267. [C67]

Vestibular neurectomy: preliminary to operation for acute separative petrositis. S. ROBERT and A. KAPLAN. Arch. Otolaryngol. 1936, 3: 25.

The mastoid in the infant, an anatomical and radiological study. J. BARNES. Presse med. Par. 1935, 43: 1093.

Histological changes in the temporal bone in senile deafness (Paget's disease). J. G. WILSON and S. J. ASHBY. Arch. Otolaryngol. 1936, 23: 37. [C67]

Nose and Sinuses

Recent fractures of the nose. J. BARNES and J. TAYLOR. Br. Am. J. Surg. 1936, 3: 10.

The diseases of the air passages. See Dr. C. T. THOMAS. J. Laryngol. & Otol. 1936, 51: 1. [C67]

Foreign bodies in the nasal fossa. G. ASCHOFF. Rev. med. y chir. de la Habana, 1935, 40: 609.

Cavernous hemangioma-endothelioma of the nose. L. J. LAWSON. Arch. Otolaryngol. 1936, 23: 98.

Plastic reconstruction of nasal deformities. K. KATZ. New York State J. Med. 1936, 36: 20.

Reconstructions about the nasal tip. C. L. STRAUSS. Surg. Gynec. & Obst. 1936, 61: 71.

The management of paranasal sinuses. W. A. WATERS. South. M. J. 1936, 29: 9.

Research report on experimental and clinical rhinitis. R. A. FLETCHER and O. LARSEN. Arch. Otolaryngol. 1936, 23: 3.

The treatment of chronic sinus infection with unabsorbed bacterial antigens. F. C. KRACOW. Laryngoscope, 1936, 46: 46.

A review of the relation between sinusitis and pulmonary disease. F. HARRIS. U. S. Nav. M. Bull. 1936, 24: 32.

Tumors of the nasal accessory sinuses. A. H. D. 1936. J. Oklahoma State M. Assn. 1936, 29: 9.

A set of cures for use in the sinuses. C. C. FOX. Arch. Otolaryngol. 1936, 23: 104.

The external fronto-ethmoido-orbital operation. R. LUCSON. Laryngoscope, 1936, 46.

Maxillary sinusitis A brief discussion and a few points in technique W B HOOVER Surg Clin North Am, 1935, 15 1693

Mouth

Surgical prosthesis of oral and facial defects N A OLLER and E F ANT Am J Surg, 1936, 51 24
 Harelip H D STEPHENS Brit M J, 1936, 1 5
 Studies on the inheritance of harelip and cleft palate, with particular reference to the genealogy C H SCHOFER Arch f Klin Chir, 1935, 152 200
 Present day conception of cleft lip and palate surgery H L D KIRKPATRICK Texas State J M, 1936, 31 571
 A report of 355 cases of carcinoma of the lip I IACONOVIC and ONICA Rev de Chir Bucharest, 1935, 38 1
 Pain in the dental field C W FETTERMAN Med Clin North Am, 1936, 10 1057
 A report of fifty cases of cleft palate operated upon by the method of Veau Critical consideration I SPANIER Deutsche Zahn usw Heilk, 1935, 2 230
 Surgical repair of cleft palate with special reference to lengthening the soft palate H S VAUGHAN Am J Surg, 1936, 51 5
 Malignant tumors of the base of the tongue J DUCLOS and L DUCLOS Lyon chir, 1935, 37 641 [427]
 Sarcoma of the tongue A CRENELZZI and N ORLANDI Clin Lab, 1935, 20 386

Pharynx

Septic sore throat clinical and bacteriological considerations I PILOR Med Clin North Am, 1936, 10 1143
 Cavernous hemangioma of the hard and soft palate, anterior and posterior pillars of the pharynx and larynx J F WOODWARD, JR Laryngoscope, 1936, 46 32
 The treatment of epistaxis and pyemia following tonsillar infections S J PEARLMAN Med Clin North Am, 1936, 10 1151
 Malignant lymphoma of the tonsil H JACKSON, JR, F PARKER, JR., and A M BRULS Am J M Sc, 1936, 101 1
 Removal of tonsils by electrical currents of high frequency A ERIOW Brit M J, 1936, 1 152
 Observations following tonsillectomy, changes in the sedimentation time A MISSARIA Policlin, Rome, 1935, 42 sez med, 685
 A case of emphysema of the cheek and neck following tonsillectomy T O HOWIE J Laryngol & Otol, 1936, 51 36

Neck

Vascular disturbances due to cervical rib J SÉNÉQUEM Mem P Acad de chir, 1935, 61 1372
 Cervical rib with aneurism of the subclavian artery WERNHIMER Mém P Acad de chir, 1935, 61 1373
 Late results of operation for cervical rib An analysis of the varied mechanism of vascular complications caused by cervical rib R LERICHE Bull et mém Soc nat de chir, 1935, 61 1292 [427]
 Varices of the neck V JURA Arch ital di chir, 1935, 41 101 [428]
 Dermoid cyst of the neck E I VILA, M ETCHEVERRY, and N P ESCARÁ DIEHL Rev méd-quirurg de patol femenina, 1935, 4 643
 Thyroid diseases and dysfunctions E P SLOAN Colorado Med, 1936, 33 12

Diseases of the thyroid SIR H ROLLSTON Practitioner, 1935, 135 725

The clinical significance of electrical impedance determination in thyroid disorders J W HORTON, A C VAN RAVENSWAAY, S HERTZ, and G W THORN Endocrinology, 1936, 20 72

Blood iodine studies in relation to thyroid disease. Basic concept of the relation of iodine to the thyroid gland, an iodine tolerance test H J PEPKIN, F H LAURY, and R B CATTILL New England J Med, 1936, 214 45

The Reid Hunt reaction and the thyrotropic hormone H WINSHAELE Endocrinology, 1936, 20 100

Hyperthyroidism masked as essential hypertension S K ROBINSON Illinois M J, 1936, 60 77

The prevention of goiter in Wisconsin, a challenge to the medical profession A S JACKSON Wisconsin M J, 1936, 35 14

Exophthalmos following the administration of thyroid extract W R BRAIN Lancet, 1936, 230 182

Mediastinotomy for substernal goiter F A DRENNEN Ann Surg, 1936, 103 135

Basedow's disease and cardiac insufficiency M LABBE, P UHRY, SIVAIN BLONDIN, and MÉSIREL Bull et mém Soc méd d hop de Par, 1935, 51 1538

Exophthalmos of Basedow origin C WFSKAMP and C AVAREZ Rev méd d Rosario, 1935, 25 1089

Voluminous toxic intrathoracic goiter, severe basedowism, removal of goiter by thoracotomy, death on the fourth day probably due to pulmonary edema R THICKEF Mém P Acad de chir, 1935, 61 1410

Surgical treatment of Basedow's disease, a study of twenty eight cases I MURFSAU and I POPA Rev de chir, Bucharest, 1935, 38 26

Thyroidotomy in asystole due to Basedow's disease H WELTI Bull et mém Soc méd d hop de Par, 1935, 51 1548

Surgical treatment of cardiac disturbances due to Basedow's disease LABBE, BOULIN, PIERRE-DUTAILLIS, UHRY, and ANTONELLI Bull et mém Soc. méd d hop de Par, 1935, 51 1704

A case of metastatic adenoma of the thyroid, clinical and histological study D SALVINO Riv di chir, 1935, 1 656

The experimental production of epithelial giant cells in the thyroid L OLIVER Spermentale, 1935, 80 555

Thyroid gland ablation J H PERTIS and E D SORSKY California & West Med, 1936, 44 34

The surgical treatment of toxic goiter G KEYNES Practitioner, 1935, 135 743

Total thyroidectomy for congestive heart failure and angina pectoris J A MCCREERY Ann Surg, 1936, 103 136

The relation of the thyroid gland to hematopoiesis I Experimental total thyroidectomy in the rabbit J C SHARPE and J D BISGARD J Lab & Clin Med, 1936, 21 347

The relationship between the otolaryngologist and the plastic surgeon H HAYS Am J Surg, 1936, 51 38
 Congenital laryngeal stenosid J R DIAZ NIELSEN Semana med, 1935, 42 1669

Tuberculosis of the larynx requiring tracheotomy M C MYERSON Arch Otolaryngol, 1936, 23 1 [428]

Abscess of the larynx, with a report of cases C P SCHENCK Texas State J M, 1936, 31 549

The laryngeal disease of the Emperor Frederick L COLLEDGE J Laryngol & Otol, 1936, 51 31

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Enzymic activity of the brain. J. H. QUASTEL. *Proc. Roy. Soc. Med. Lond.* 1936, 29, 300.

On the technique of encephalography; with special reference to the use of apparatus. T. J. C. VAN BROUCK. *Am. J. Roentgenol.* 1936, 35, 78.

Ventriculography with colloidal thorium chloride. W. FRIEDMAN, H. H. SCHWARTZ, and C. MOORE. *J. Am. M. Ass.* 1936, 106, 96. [129]

Some cases and theory of lambar and corticosteric puncture. J. D. MILLER. *Australian & New Zealand J. Surg.* 1936, 5, 171.

Head injuries. W. T. ERVO. *Am. J. Surg.* 1936, 31:61.

Fractures of the base of the skull and parietal. M. LERZELLE. *Presse méd. Par.* 1935, 43, 1918.

Fracture of the base of the skull with intracranial glomphosphoryl veget. accessory paralysis. G. EISENBERG and F. HENNING. *Deutsche Zeitsch. f. Chir.* 1935, 243, 819.

The sequelae of head injuries. C. G. McDONALD. *Med. J. Australia*, 1936, 45.

The surgical sequelae of acute cerebral trauma. O. PHILLIPS. *Med. J. Australia*, 1936, 1, 41.

Spontaneous subarachnoid hemorrhage. H. D. PICKLES and A. H. DICKERLEY. *Lancet*, 1935, 229, 1461.

Intracranial aneurysm. F. F. CLARKE and D. B. D. VAN. *J. Michigan State M. Soc.* 1936, 35, 5.

The treatment of occipital dysplasia by injection of alcohol into the cerebral artery. K. KEMMEL. *Rev. de chir. Par.* 1935, 54, 779.

The roentgen diagnosis of intracranial lesions. A. HARTUNG and T. J. WACHOWSKI. *Illinois M. J.* 1936, 69, 25.

A review: clinical and pathological, of parathyroidal lesions. C. H. FRAZER. *Surg. Gynec. & Obst.* 1936, 61:1.

Hydrolic disease of the brain, report of a case. W. A. HALLIS. *Australian & New Zealand J. Surg.* 1936, 5, 111.

Brain abscess. F. STRICK. *Rev. med. y chir. de la Habana* 1935, 43, 114.

Cerebral. W. E. ADAMS. *Am. J. Surg.* 1936, 31:168.

Brain tumors in children. A. J. SCOTT, JR. *California & West. Med.* 1936, 44, 25.

A case of hypophyseal tumor. W. HARTER. *Zentralbl. f. Chir.* 1935, p. 539.

The surgical treatment of brain tumors. M. GILLES. 1936. Montpellier, France.

On the growth of Ross sarcoma inoculated into the brain. L. VIGORZIO LÓPEZ. *Am. J. Cancer*, 1936, 46, 49.

Experiments on surgery of the brain and spinal cord. A. J. BAKER. *Med. Press* 1935, 10, 101. [129]

Subtemporal and suboccipital myoplastic craniotomy. W. LOVE and W. PIERCE. *Canadian M. Ass. J.* 1936, 34, 6.

The electrical activity of the cortex. E. D. ARMSTRONG. *Proc. Roy. Soc. Med. Lond.* 1936, 29, 97.

Reconstructions of the dura mater and experimental evaluation of craniocollagenocortical wounds. M. DE BEE. *Arch. Ital. di chir.* 1935, 41, 155.

Bacterial meningitis, a comparative study of various therapeutic measures. C. J. TAYLOR. *J. Am. M. Ass.* 1936, 106, 171.

Normal and pathological anatomy of the gastric plexus. F. BIZZI. *Spencerista*, 1935, 49, 429.

The trigeminal sheath. S. M. WERNER. *Laryngoscope*, 1936, 46, 43.

Kind of headache, facial neuralgia, glomphosphoryl neuritis, superior laryngeal neuritis, occipital neuritis, pain from Blaud's neuritis. A. ELLERUM. *Med. Clin. North Am.* 1936, 19, 1015.

Anatomic histology. R. M. DICKSON and H. A. RILEY. *Med. News* 1936, 19, 1015.

The surgical treatment of involuntary movements of the extremities in postencephalitic parkinsonism. F. J. MACRAE. *J. de chir.* 1935, 46, 878. [129]

Spinal Cord and Its Coverings

The presence of rheumatism in the syngomyelia cavity. T. ALABOUCHE and T. HENRY. *Ann. d'hist. nat.* 1935, 12, 497. [129]

Syphilis of the spinal cord. H. W. WINTERMAN. *Am. J. Syphilis*, 1936, 20, 61.

Chondroma for the relief of intractable pain. R. G. SEEVER. *Kentucky M. J.* 1936, 31, 29.

Peripheral Nerves

Nerve injuries. D. H. LACROIX and GARCIA LAMPA. *Rev. de chir. de Barcelona*, 1935, 5, 79.

Neurofibromatosis associated with proptosis and defect of the orbital wall. A. J. MOORE. *Australian & New Zealand J. Surg.* 1936, 5, 14.

Van Kerkhove's disease (neurofibromatosis) with scoliosis. H. J. BARNUM. *Proc. Roy. Soc. Med. Lond.* 1936, 29, 1.

Sympathetic Nerve

The role of sympathetomy in the treatment of peripheral vascular disease. R. J. HAZEN. *Brit. J. Surg.* 1935, 23, 414. [129]

The effect of lumbar sympathetomy upon the growth of legs paralyzed by anterior poliomyelitis. R. J. HAZEN. *J. Bone & Joint Surg.* 1936, 18, 21.

Miscellaneous

Neurofibromatosis, with reference to skeletal changes, compression myelitis, and malignant degeneration. A. MILLER. *Arch. Surg.* 1935, 22, 109.

SURGERY OF THE THORAX

Chest Wall and Breast

Congenital deformities of the sternum. BLUMENFELD. *Zentralbl. f. Chir.* 1935, p. 2081.

Cold staphylococcal abscess in the chest wall. G. SCOLLO. *Falckia, Rome* 1935, 41, sec. prat. 1321.

Mastectomy function and the hormones of the endocrine glands. W. SAWYER. *Zentralbl. f. Gynæk.* 1935, p. 1754.

Mastoiditis and gynecoma. M. VINCIGUERRA. *Scienze* 1935, 47, 1669.

Electrolytic breast. M. V. FALSA. *Rev. Soc. de chir. y gynec. de Buenos Aires*, 1935, 14, 691.

- Tuberculosis of the breast L BRICFR and H MANDEL-
ZIM Ann Surg, 1936, 103, 57
- The treatment of acute intramammary abscess by inci-
sion and by aspiration R J V BATTLE and G N
BUTLER Brit J Surg, 1936, 23, 640
- Simple dermoid cysts of the breast J G MENVILL
Ann Surg, 1936, 103, 40
- A case of voluminous adenofibroma of the breast in a
young girl, removal by esthetic incision I PASTA and
F LAROTTE Bull Soc d'obst et de gynec de Par, 1935,
24, 501
- Calcareous breast tumors J H CONWAY Am J Surg,
1936, 31, 72
- Mixed tumor of the breast, fibro adenocysto-myoma angio-
sarcoma V CONTRIN Clin chir, 1935, 11, 685
- So-called benign tumors of the breast sometimes con-
taining the germs of cancer DELU DE FRENELL Bull
et mem Soc d chir de Par, 1935, 27, 502 [432]
- Benign tumors of the breast containing carcinomatous
foci, extensive esthetic operative treatment Bull et mem
Soc d chirurgiens de Par, 1935, 27, 535
- Benign breast lesions, with special consideration of
borderline tumors, cancer of the breast, and the newer
conception of pre operative irradiation L C COHN
West Virginia M J, 1936, 32, 1
- On the relation between the incidence of mammary
cancer and the nature of the sexual cycle in various strains
of mice. E L BURNS, M MOSKOW, V SUTZLER, and
L LOHN Am J Cancer 1936, 26, 56 [432]
- "Acute" carcinoma of the breast—"Pera d'Orange"
type. F HERMAN-JOHNSON Proc. Roy Soc Med,
Lond, 1936, 29, 223
- The effect of pregnancy on carcinoma of the breast
BROUHA Zentralbl f Chir, 1935, p 2085
- An improved technique for the introduction of radium
needles in the treatment of carcinoma of the breast R
BROOKE Brit J Surg, 1936, 23, 501
- Carcinoma of the breast, survival for twenty four years
with local recurrences and metastases in the opposite
breast and axilla M C TON and F K DAWSON Surg,
Gynec & Obst, 1936, 61, 90
- Nursing following plastic operation on the breast E
REESE Zentralbl f Chir, 1935, p 1933
- ### Trachea, Lungs, and Pleura
- A new pulmonary function L BRET and D BARGE-
TOS Arch. méd-chir de l'appar respir, 1935, 10, 137
- New methods of bronchography G CORVALAN, C
DURAN, and E GARCIA Rev méd de Chile, 1935, 63, 610
- Topographic orientation of the bronchi and pulmonary
arteries, and the peripheral areas of the lung R GRAND-
GÉRARD and P WEBER Arch. méd-chir de l'appar
respir, 1935, 10, 180
- The inhalation of common pins J McFAULAND
Lancet, 1936, 230, 198
- Surgically treated cases of foreign bodies in the lungs.
GRIETZ Svensk Läkartidn, 1935, p 1109 [433]
- Spontaneous hemopneumothorax S J CATLOGNO
Semana méd, 1935, 42, 1842
- Changes in the aorta with experimental opening of pyo-
pneumothorax. F CHALETZKAJA Arch f path Anat,
1935, 295, 245
- Chronic lung disease J A MILLER South M J,
1936, 29, 57
- The etiology and pathology of non-tuberculous pul-
monary diseases A C STARRY J Iowa State M Soc,
1936, 26, 33
- X-ray findings in non tuberculous lung diseases H W
DAHL J Iowa State M Soc., 1936, 26, 36
- Actinomycosis of the lung R WILSON Proc Roy Soc
Med, Lond, 1936, 29, 211
- Pulmonary plombage LUNDH Svensk Läkartidn,
1935, p 1547
- Pneumothorax therapy in lobar pneumonia T J
ABERNATHY F I HORNALL, JR, and C M MACLEOD
Bull Johns Hoplins Hosp, Balt, 1936, 58, 35
- The role of surgery in the treatment of pulmonary tuber-
culosis M P BURKE Irish J M Sc, 1935, 120, 676
- Advances in surgical indications in pulmonary tubercu-
losis J SCHINDLER Zentralbl f Chir, 1935, p 2972
- Infolding of tuberculous cavities E HERTL Chirurg,
1935, 7, 784
- Collapse therapy in pulmonary tuberculosis C L
HARFILL Virginia M Month, 1936, 62, 572
- Results of 157 cases of artificial pneumothorax BRON-
PASTOR Prog de la clin, 1935, 23, 776
- The incidence of pleural effusion in artificial pneumo-
thorax D ROSSIGNOL Brit M J, 1936, 1, 95
- Observations with oleothorax treatment A GULL-
BERG Acta med Scand, 1935, 87, 213
- Suggestions for newer procedures in thoracoplasty
LICK Zentralbl f Chir, 1935, p 2501
- Partial superior thoracoplasty, apicectomy without
plombage R INOCHUITO and H D AGUILAR Semana
méd, 1935, 42, 1804
- A method of performing thoracoplasty and other tho-
racic interventions by the posterior route. F E BONFO
Semana méd, 1935, 42, 1899
- Indications and results of extrapleural thoracoplasty
E ILLERT J de méd de Bordeaux, 1935, 112, 863
- The technique and results of thoracoplasty I DELMES
and R GARCIA Prog de la clin, 1935, 23, 746
- Two cases of transverse myelitis following thoracoplasty
under local anesthesia W SCHMIDT and E BILLIG
Beitr z klin Chir, 1935, 162, 441
- Abscess of the lung and esophageal diverticulum P
PEYVOST and M IENLANC Arch. méd-chir de l'appar
respir, 1935, 10, 242
- Gangrenous abscess of the lung, putrid pleurisy following
catheterization of the esophagus, recovery without opera-
tion E DONZIEUX and A MEYER Arch. méd-chir de
l'appar respir, 1935, 10, 238
- The treatment of pulmonary abscess and gangrene by
the intravenous injection of sodium benzoate L GOLD-
KORN Presse méd Par, 1935, 43, 2094
- The importance of early diagnosis in bronchiectasis J
T GARELL JR J Am M Ass, 1936, 106, 92
- A curious error in diagnosis by injection of lipiodol in
bronchiectasis E SERGENT and R KOURILSKY Arch
méd chir de l'appar respir, 1935, 10, 235
- Bronchiectasis and pulmonary tuberculosis G DADDI
Policlin, Rome, 1935, 42, sez med 700
- The treatment of bronchiectasis J HEAD Med Clin
North Am, 1936, 19, 1171
- Total pneumonectomy for bronchiectasis R WALKER
Proc Roy Soc Med, Lond, 1936, 29, 212
- Total pneumonectomy for bronchiectasis J E H
ROBERTS Proc. Roy Soc Med, Lond, 1936, 29, 220
- Total pneumonectomy for bronchiectasis F J S
GOWAR Proc. Roy Soc Med, Lond, 1936, 29, 221
- Lobectomy for bronchiectasis J E H ROBERTS Proc.
Roy Soc Med, Lond, 1936, 29, 220
- Cystic disease of the lung H HENVELL Arch Int.
Med, 1936, 57, 1
- Congenital cysts of the lungs E FREEDMAN Am. J
Roentgenol, 1936, 35, 44 [433]
- Isolated and suppurative congenital cysts of the lung
SERGENT, DURAND, KOURILSKY, and PATALANU Arch
méd chir de l'appar respir, 1935, 10, 142 [434]

Echinococcus cyst of the lung P MARCOMA. *Riforma med.* 1935, 511: 7648

Primary tumors of the lung G. FORVI. *Riforma med.* 1935, 511: 648

Primary chondroma of the lung: a case report. B K LIVERMORE. *Virginia M. Month.* 1935, 61: 589

Carcinoma of the right lung H II. M. LYLE. *Ann Surg.* 1935, 101: 124

Primary carcinoma of the lung or bronchus E. A. GRAHAM. *Ann Surg.* 1935, 101: 1435

Primary carcinoma of the lung occurring in the apex G. E. MARCEL and B. L. CRAWFORD. *Am J. Cancer.* 1935, 36: 137

Carcinoma of the bronchus simulating a mild septicaemia T. W. WADSWORTH. *Brit M J.* 1935, 15: 1435

Primary carcinoma of the lung: early diagnosis and treatment by pneumonectomy R. H. OVERHOLT. *New England J. Med.* 1935, 254: 93

Total removal of the left lung for carcinoma J. B. FLICK and J. H. GANNON, JR. *Ann Surg.* 1935, 101: 130

Contributions to the technique of pulmonary embolectomy G. NYSTRÖM and A. BLALOCK. *J. Thoracic Surg.* 1935, 5: 199

The three zones of simple pleural effusions J. KASRITS. *Am J. Roentgenol.* 1935, 35: 57

Certain peculiar pleural complications, peripneumonia and inflammation of the thoracic wall A. MAURIER, J. ROLAND, and M. ROUX. *Mém. l'Acad. de chir.* 1935, 61: 1399

Visualization of the minimal amount of pleural exudate usually overlooked H. LAURELL. *Acta radiol.* 1935, 16: 691

A simple cyst of the pleura, with the report of a case E. FREEMAN and M. A. SIMON. *Am J. Roentgenol.* 1935, 35: 85

Primary cancer of the pleura V. AUGERET, F. AVIEYRON, and S. FARMANIER. *Arch. méd.-chir. de l'Appar. respir.* 1935, 9: 1437

Heart and Pericardium

The diagnosis of heart wounds I. A. BOGGER. *South M. J.* 1935, 39: 8

A French military bullet in the heart of a wounded soldier K. KASRITS. *Radial. Med.* 1935, 4: 193

Late sequelae of war injuries to the heart, with reference to traumatic endocarditis H. SCHWAB. *Frankfurt Ztschr. f. Path.* 1935, 48: 493

Congenital absence of the pericardium, with the report of a case W. E. LANE. *New England J. Med.* 1935, 214: 81

Chronic mediastinal pericarditis L. TORRACA. *Riforma med.* 1935, 5: 655

Calculated cyst of the pericardium. A. D. WRIGHT. *Brit. J. Surg.* 1935, 23: 616

Extrapleural fat bodies F. G. KATZ and M. PRINER. *Am J. Roentgenol.* 1935, 35: 40

Pericardectomy in a case of Beck's disease J. E. H. ROBERTS. *Proc. Roy. Soc. Med. Lond.* 1935, 29: 219

Esophagus and Mediastinum

The technique of sounding without end G. LÖNNER. *Zentralbl. f. Chir.* 1935, p. 5614

Anterior thoracic esophageoplasty for inflammatory constrictive stenosis of the esophagus H. COSTANTINI. *Bull. et méém. Soc. méd. de chir.* 1935, 6: 15

Esophagobronchial fistulas BARUT. *Presse méd. Par.* 1935, 43: 965

Peptic ulcer of the esophagus. M. YERART and G. GOTTA. *Rev. Assoc. méd. argent.* 1935, 40: 1455

Antemortem diagnosis of the esophagus causing fatal hemorrhage C. POLSON. *J. Path. & Bacteriol.* 1935, 43: 37

Esophagectomy for carcinoma of the thoracic esophagus E. S. J. KNO. *Brit. J. Surg.* 1935, 3: 351

Traumatic mediastinal hemorrhage L. M. ZIMMERMAN. *Am. J. Surg.* 1935, 3: 70

Advances in the radiogenetical diagnosis of mediastinal diseases von PARNETZ. *Zentralbl. f. Chir.* 1935, p. 5072

Spontaneous pneumothorax with mediastinal hernia M. BRYAN, J. M. BLAUJEN, and M. BERNSTEIN. *Presse méd. Par.* 1935, 43: 1031

Miscellaneous

An anatomotopographical study of the vessels of the thorax Their relation to adhesions Analysis of the vascular images seen through the thoracoscope J. AZULI, M. TAMARCA, and F. ANGLIO. *Prog. de la chir. Med.* 1935, 23: 733

A rare congenital anomaly in position of the aorta and the esophagus L. MICCINI. *Radial. med.* 1935, 22: 507

Total congenital ectostasis of the left lobe of the diaphragm J. B. GILARD. *Semin. méd.* 1935, 43: 581

Injuries of the diaphragm and diaphragmatic hernia V. O. SALZMANN. *Soviet Khir.* 1935, 4: 74

Diaphragmatic hernia, aberrant lobes of the liver C. V. SOLARI. *Bol. y trab. Soc. de ciruj. de Buenos Aires.* 1935, 9: 1194

Thoracic stoma C. BORDOY FORT and C. MILANOV. *Arch. cirurgías de med. ciruj. y espec.* 1935, 7: 441

Surgery of the thorax: A discussion of the problems and a presentation of cases B. M. CARTER. *J. Med. Cases.* 1935, 6: 371

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Clinical history of a case of hirsutia plavaria J. LAROUS. *Bull. et méém. Soc. d. chirurgiens de Par.* 1935, 37: 549

The eradication of hernias by resection R. C. McDAID. *Northwest Med.* 1935, 35: 41

Tuberculosis of the umbilicus—terminal foris A. BAKER. *Rev. franc. de gynéc. et d'obst.* 1935, 30: 603

Pneumococcal peritonitis F. HUMMEL. *J. de chir.* 1935, 46: 900

Bone physiological aspects of the treatment of peritonitis T. G. ORR. *South M. J.* 1935, 39: 49

Pseudomyoma peritonei T. AVTURI. *Ztschr. f. Geburtsh. u. Gynæk.* 1935, 17: 27

A case of multiple cysts of the mesentery with varying contents simulating circumscribed appendicular peritonitis A. BOMACCI. *Fishech. Roma.* 1935, 47: 88

Primary retroperitoneal and mesenteric tumors C. C. FLEMMING HAYES. *Nord. med. Ztschr.* 1935, p. 608

Experimental investigations on the function of the great omentum H. UEDA and W. MARUOKI. *Deutsche Ztschr. f. Chir.* 1935, 243: 290

Gastro-Intestinal Tract

- The value of the fluoroscope in the examination of the gastro-intestinal tract. J C. PINEDA. *Rev med y cirug de la Habana*, 1935, 40 979
- Congenital stenosis in the infant L CHIODIN *Rev méd. d Rosario*, 1935, 25 1108
- The treatment of some common digestive symptoms J RYLE. *Brit. M J*, 1936, 1 23
- Extramucosal suture and electrosurgery R MANVINI *Clin. chir*, 1935, 11 949
- Presacral sympathectomy for obstinate constipation. J W HINTON *Ann Surg*, 1936, 103 145
- Gastric diverticula, with the report of a case before and after operation G A EWART and G R M CORDNER *Brit. J Surg*, 1936, 23 530
- Studies on the gastric cardia in man B HERZBERG, A ROGOV, and P RUDNICKY. *Deutsche Ztschr f. Chir*, 1935, 245 488
- Pylorospasm in an adult, report of a case F G SPEIDEL. *Kentucky M J*, 1936, 34 38
- Tissue changes in the fundus and body of the stomach following resection of the pyloric and prepyloric regions. An experimental study J M LASOWSKY, O F SCHAROWATOWA, and M M KOGAN. *Beitr z path. Anat*, 1935, 95 381
- The significance of gastro-intestinal hemorrhage G W MILLETT. *Northwest Med*, 1936, 35 26
- Experimental erosive gastritis due to diphtheria toxin H HANKE. *Beitr z path. Anat*, 1935, 95 391
- Two cases of acute phlegmon of the stomach E WINKLER. *Wien med Wchnschr*, 1935, 2 1196
- The onset of ulcers. R A GUTMAN and G VOULTIOTTIS. *Bull et mém. Soc. méd d. hop de Par*, 1935, 51 1679
- Peptic ulcer M A SCHNITZER and W A EVANS, JR. *New England J Med*, 1936, 214 198
- Peptic ulcer T R. BROWN. *West Virginia M J*, 1936, 32 17
- Acute peptic ulceration on contact areas H SACHSE. *Beitr z path. Anat.*, 1935 96 61
- The general practitioner and perforated gastroduodenal ulcers BARÓN. *Arch de med, cirug y especial*, 1935, 16 760
- Gastroduodenal ulcer and chronic splenomegaly G NICOLAS. *Arch. ital. di chir*, 1935, 41 428
- Clinical aspects of gastrojejunal ulcer F M JORDAN. *Am. J Surg*, 1936, 31 83
- Acute perforated peptic ulcer M CORFF. *Am J Surg*, 1936, 31 77
- Gastric ulcer with fatal hemorrhage in the newborn R H. KUNSTADTER and E GETTELMAN. *J Am M Ass*, 1935, 106 207
- Hematemesis due to gastric and duodenal ulcer C G SHAW. *Australian & New Zealand J Surg*, 1936, 5 254
- The prognosis and treatment of massive hemorrhages due to ulcer UMBER. *Deutsche med Wchnschr*, 1935 2 1265
- The treatment of severe hemorrhage in gastric and duodenal ulcers K RESCHKE. *Deutsche med Wchnschr*, 1935, 2 1268
- The treatment of perforated gastric and duodenal ulcers. H VON HABERER. *Muenchen med Wchnschr*, 1935, 2 1473
- Jejunal sounding in the treatment of gastric ulcers. R STAHL. *Zentralbl f Chir*, 1935, p 2918
- A new method of treating gastric ulcer J SCHEINER. *Cas. lek. česk.*, 1935, p 995
- The medical treatment of peptic ulcer T I BENNETT. *Brit. M J*, 1936, 1 120
- Alkaline therapy of the acid-base equilibrium in gastroduodenal ulcer and other gastric diseases A. CASTNY. *Polichin*, Rome, 1935, 42 sez med 725
- Hepatotherapy and amino-acid therapy in gastroduodenal ulcer G IZAR. *Polichin*, Rome, 1935, 42 sez. prat 2447
- Mucin in the treatment of gastroduodenal ulcers. FERNÁNDEZ. *Arch de med, cirug y especial*, 1935, 16 763
- The surgical management of peptic ulcer J A WOLFER. *Northwest Med*, 1936, 35 5
- The surgical treatment of peptic ulcers SIR J WALTON. *Brit. M J*, 1936, 1 172
- Surgical treatment of gastric and duodenal ulcer E PERMAN. *Acta chirurg Scand*, 1935, 77 Supp 38 [439]
- Partial gastrectomy in the treatment of gastric ulcer and cancer W M MILLS. *J Kansas M Soc*, 1936, 37 1
- Benign tumors of the stomach Observations on their incidence and malignant degeneration L G RIGLER and L G ERICKSEN. *Radiology*, 1936, 26 6
- The blood cholesterol and cancer of the stomach PENA y PEREZ. *Arch. de med, cirug y especial*, 1935, 16 753
- A new method and end-results in the treatment of carcinoma of the stomach and rectum by surgical diathermy (electrical coagulation) A A STRAUSS. *J Am. M Ass*, 1936, 106 285
- Palliative irradiation of gastric cancer G T PACE, I M SCHARNAGEL, E H QUIMBY, and M C LOIZEAUX. *Arch Surg*, 1935, 31 851 [440]
- The procedure of election in the operative treatment of cancer of the stomach and of gastric and duodenal ulcers. R. E DÓNOVAN. *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 1148
- The procedure of election in the operative treatment of cancer of the stomach and of gastric and duodenal ulcers COPELLO. *Bol y trab Soc. de cirug de Buenos Aires*, 1935, 19 1184
- Lymphosarcoma of the stomach J R PHILLIPS and F H KILGORE. *Am J Surg*, 1936, 31 179
- Lymphosarcoma of the stomach. J A PRESNO BASTION. *Rev med y cirug de la Habana*, 1935, 40 981
- The surgical treatment of lesions of the stomach and duodenum. E S JUDD. *California & West. Med*, 1936, 44 8
- The technique of automatic suture of the stomach and intestines CASAS OCHOA. *Prog de la clin*, 1935, 23 782
- Incontinent gastrostomy, an apparatus for demonstration R CISNEROS. *Bol. y trab Soc. de cirug de Buenos Aires*, 1935, 19 1197
- An experimental study of morphological changes in the blood following total gastric resection. A KOHN. *Deutsche Ztschr f Chir*, 1935, 245 783
- Late disturbances following the use of the Petz sewing machine in gastric resection? O SCHUERCH. *Zentralbl. f Chir*, 1935, p 2600
- Experimental anemia following gastrectomy G BENCE. *Orvosi hetil*, 1935, pp 1135, 1162
- Subcutaneous rupture of the herniated intestine following contusion F LERATI. *Clin chir*, 1935, 11 975
- Intestinal obstruction associated with diffuse peritonitis of appendiceal origin J M SOLDEVILLA. *Clin y lab*, 1935, 20 379
- Retractile sclerosing mesenteritis and acute intestinal obstruction A LEFORT. *Bull et mem Soc. d. chirurgiens de Par*, 1935, 27 491
- Acute intestinal obstruction due to an impacted gall stone F P McNAMARA, L A FABER, and A B NESLER. *J Iowa State M Soc*, 1936, 26 45
- Calceemia and intestinal occlusion. F RUGGIERI. *Polichin*, Rome, 1935, 42 sez. chir 669 [441]

- A case of volvulus due to ascariis. I. I. GORDON. Arch. Clin. Chir. 1935, 184: 642.
- The surgical treatment of the dysenteries. C. F. DIXON. Minnesota Med. 1935, 8: 33.
- Two cases of typhoid perforation of the bowel; intervention, recovery. J. PAIR. Rev. de chir. de Barcelone, 1935, 5: 390.
- Peculiarities in structure of the small bowel which predispose to ileus. A. W. SACHSINGER. Arch. f. Klin. Chir. 1935, 184: 93.
- Intussusception in a forty-seven year spinster smoker. K. BOHMER. Zentralbl. f. Chir. 1935, p. 2487.
- Allergic inflammation of the wall of the small bowel. L. FRETZ. Spemannsche, 1935, 80: 632.
- Two cases of partial infarct of the small bowel: mesenteric infarct due to strangulated hernia. A. LEROUX. Bull. et mém. Soc. d' chirurgiens de Par. 1935, 27: 495.
- Sarcosis of the duodenum. G. SEITZ and M. H. FANDORF. Lancet, 1935, 720: 104.
- Bleeding jejunal varices. A contribution to the differential diagnosis of gastro-intestinal hemorrhage. W. LATTIN. Zentralbl. f. Chir. 1935, p. 643. [443]
- A case of multicellular endothelial mesenteric cysts of the jejunum complicated by volvulus. L. von ACHLANTOW. Zentralbl. f. Chir. 1935, p. 2057.
- Benign tumor of the superior portion of the jejunum; isochromes leading to intussusception with periods of chronic obstruction; enterostomy; recovery. J. BRAUER. Mémoires Acad. de chir. 1935, 61: 353.
- A radiological study of the ileocecal valve. M. CHIRAY and A. BOISSEY. Presse méd. Par. 1935, 41: 2061.
- The role of the ileocecal sphincter in cases of obstruction of the large bowel. L. EDELING. Arch. Surg. 1935, 32: 22. [442]
- A combined form of stasis and colitis. B. B. CHOWN and B. D. ROSSIGNOL. J. Am. M. Ass. 1935, 100: 1.
- Obstruction due to Meckel's diverticulum. R. DUBOIS and R. BORDO. Semaine méd. 1935, 42: 1310.
- A case of perforated Meckel's diverticulum coincident with tumor of the appendix. J. HENNINGSEN. Presse méd. Par. 1935, 41: 1079.
- Studies on the motility of the colon. D. REASATO and P. C. BOETTGER. Arch. et de chir. 1935, 41: 450.
- The symptoms of dolichocolon. J. TAILOR. Presse méd. Par. 1935, 41: 2095.
- The colon, a source of abdominal pain. L. C. GATEWOOD. Illinois M. J. 1935, 69: 84.
- The symptomatology of diverticular formations of the colon, especially with regard to the cataplexy action in feces. K. LUTHE. Acta med. Scand. 1935, Supp. 7: [442]
- Diverticula of the colon. H. C. OLSCHER and J. A. BARRY. Illinois M. J. 1935, 69: 45.
- Hirschsprung's disease. L. L. MILLER. Ann. Surg. 1935, 101: 143.
- A case of volvulus of the ileocecal colon associated with traumatic diaphragmatic hernia. C. S. BROWN. Bol. Soc. de chir. de Rosario, 1935, 5: 363.
- Bacterium microphorum in chronic ulcerative colitis. G. M. DACE, L. R. DRAHEIM, and T. E. HEINE. J. Am. M. Ass. 1935, 100: 7.
- Spontaneous healing of ectopic hepatic lesions of the large bowel. PLATTNER. Zentralbl. f. Chir. 1935, p. 20: 9.
- Carcinoma of the colon. H. H. RAYNER. Lancet, 1935, 70: 36.
- Diagnostic criteria of colorectal cancer. C. ROSSER. J. Am. M. Ass. 1935, 100: 109.
- Surgical treatment of cancer of the colon. P. KOCH. Arch. f. Klin. Chir. 1935, 184: 30.
- Mixed carcinoma of the cecum in a boy of thirteen years. R. T. OLLIVE. Brit. J. Surg. 1935, 22: 466.
- Appendicitis. I. L. HORN. Ann. Surg. 1935, 101: 10.
- Methods of examination in acute appendicitis. B. HOCK. Wien. klin. Wochenschr. 1935, 2: 1187.
- Acute appendicitis and the weather. E. KAYE. Zentralbl. f. Chir. 1935, p. 2191.
- Intestinal obstruction due to acute pelvic appendicitis. L. G. MORGAN. Bol. y trab. Soc. de chir. de Buenos Aires, 1935, 101: 1187.
- The obstructive type of acute appendicitis. SERRA. Mémoires Acad. de chir. 1935, 61: 1153.
- Acute appendicitis and associated lesions: some observations on the mortality. R. N. SCOTLAND. Arch. Surg., 1935, 32: 65.
- Mortality factors in acute appendicitis. E. D. LEVY and S. DANOW. New England J. Med. 1935, 214: 51.
- Lowered death rate for acute appendicitis. J. E. LOVELL. Am. J. Surg. 1935, 31: 87.
- The treatment of acute appendicitis and its complications in the Götting Surgical Clinic in the years from 1911 to 1934. W. GARTNER, R. KORNBERG, and C. STERN. Beitr. z. Klin. Chir. 1935, 184: 426.
- Operative treatment of acute appendicitis. P. TOW and D. CARABALLO. Rev. de chir. Becharon, 1935, 38: 79.
- Appendectomy for acute appendicitis, intestinal obstruction, ileocecal fistula closure of the fistula by anastomosis and transverse colostomy. R. FRANKLIN. Bull. et mém. Soc. d' chirurgiens de Par. 1935, 27: 364.
- Improved technique of appendectomy, with results in 501 consecutive cases at St. Elizabeth's Hospital, Richmond. G. W. HENSLY. Virginia M. Month. 1935, 61: 304.
- Tumors of the appendix. H. BOWEN. Zentralbl. f. Chir. 1935, p. 1044.
- Spontaneous amputation of the appendix. K. ROLF. Case M. Soc. 1935, p. 961.
- Acute following appendectomy. P. L. HENSLY. Med. J. Australia, 1935, 1: 10.
- Traumatic division of the transverse colon and complete loss of the greater omentum, with recovery. A case report. V. D. LECHE. New York State J. M. 1935, 30: 95.
- A peculiar type of perforation in resection. P. GORDON. Zentralbl. f. Chir. 1935, p. 301.
- Diagnosis of the rectum. W. ZWISS. Wien. med. Wochenschr. 1935, 2: 1111.
- Rectal structure. L. LACROIX. Ann. J. Surg. 1935, 31: 111.
- Benign structure of the rectum. G. P. PEYRONIS. Am. J. Surg. 1935, 31: 177.
- Proctitis of the rectum, calypso and colitis of the anus, cure maintained over three months. A. BARRI. Mémoires Acad. de chir. 1935, 61: 31.
- The Swedish operation for rectal prolapse. K. ARNOLD. Zentralbl. f. Chir. 1935, p. 2799.
- The treatment of stercoraceous feces and protracted anus. JACOBOWSKI and GRONOWSKI. Rev. de chir. Becharon, 1935, 38: 1.
- Structure of the rectum, carcinoma of the rectum. H. B. STONE. South. M. & S. 1935, 68: 1.
- Carcinoma of the rectum with special reference to intra-peritoneal metastases. B. F. HENNINGSEN. Northwest Med. 1935, 33: 80.
- Carcinoma of the rectum on the services of Gross and Quere at the surgical clinic of the University of Erlangen in the period from 1918 to 1931. H. GEMMEL. 1935. Erlangen, Dissertation. [441]
- Internal hemorrhoids, determination of treatment. A. CROOKALL. Northwest Med. 1935, 33: 14.
- Elimination of postoperative pain following hemorrhoidectomy. N. J. BERNARD. New England J. Med. 1935, 214: 20.

Gonococcus infection of the anus and rectum in women: importance, frequency, and treatment. W M BRUNST and J B SALINGER. *Am. J. Syphilis*, 1936, 20: 37 [444]

Liver, Gall Bladder, Pancreas, and Spleen

Angioma access to the biliary apparatus. C J MARSHALL. *Brit. J. Surg.*, 1936, 23: 505

Life expectancy in biliary intestinal anastomosis. L L ELIASON and J JOHNSON. *Surg., Gynec. & Obst.*, 1936, 62: 10

Spontaneous external biliary fistula. I J RONCORONI. *Bol. Soc. de ciruj. de Rosario*, 1935, 2: 240

The disturbances of liver function in pleural empyema and their relationship to treatment and prognosis. B J DE PLESSIS. 1935 Freiburg, Br., Dissertation

Hepatobiliary fever. JEAN-DEZ MARTINI. *Prog. de la Clin.*, 1935, 23: 807

Acute yellow atrophy of the liver following a gunshot wound. K L MULLER and W MANDL. *Wien klin. Wochenschr.*, 1935, 2: 1450

Jaundice: a brief discussion of diagnosis followed by a proposed medical management. C I G BROWN. *Med. Clin. North Am.*, 1936, 10: 1163

The reentomological diagnosis of abscess on the concave surface of the liver. J M MILLS. *Am. J. Roentgenol.*, 1936, 15: 65

Unrecognized abscess of the left lobe of the liver: aseptic puriform pericarditis, transternal xiphoidal drainage of the abscess following the injection of lipiodol, recovery. P Heard and J MEYER MA. *Mém. l'Acad. de chir.*, 1935, 61: 1343

Cyst of the liver. SAUFBRUCH. *Zentralbl. f. Chir.*, 1935, p. 2524

Calcified cyst of the liver. D VALLARI O and C CORDERO. *Semana méd.*, 1935, 42: 1565

Primary melanoma of the liver probably of sympathetic system origin. D MARIOTTI. *Policlin. Rome*, 1935, 42: sez. med. 712

The motor function of the gall bladder. G ZAMPA. *Arch. ital. di chir.*, 1935, 60: 389 [445]

Congenital anomalies of the gall bladder. A review of 148 cases, with the report of a double gall bladder. R I Gross. *Arch. Surg.*, 1936, 32: 131 [445]

A characteristic clinical sign of distention of the gall bladder. M CHIRAY and M MALINSEY. *Bull. et mém. Soc. méd. d'hop. de Par.*, 1935, 51: 1522

Evacuation of the gall bladder in old age. J A BOYDEV and S A GRANTHAM, JR. *Surg., Gynec. & Obst.*, 1936, 62: 34

Major surgical problems resulting from primary diseases of the gall bladder. E S JUDD. *Rev. med. y ciruj. de la Habana*, 1935, 40: 1117

Cholecystitis. F I ROOT. *Colorado Med.*, 1936, 33: 38

A study of the liver in cholecystitis. R SOLI. *Semana méd.*, 1935, 42: 1501

Acute cholecystitis associated with pancreatic reflux. R COLP, I E GERBER, and H DOUBILET. *Ann. Surg.*, 1936, 103: 67 [446]

Acute cholecystitis, monosympathetic manifestations of typhoid fever. C P MAYER and R MONSOLIE. *Semana méd.*, 1934, 42: 1583

Cholecystitis with cholelithiasis, a clinicopathological study of sixty patients. B HALPERT and K B LAWRENCE. *Surg., Gynec. & Obst.*, 1936, 62: 43

Gall stones in children. RUFFZ. *Zentralbl. f. Chir.*, 1935, p. 2496

Surgical problems associated with cholelithiasis. R S DRISMORE. *Cleveland Clin. Quarterly*, 1936, 3: 12

Infarct of the gall bladder. G MARX. *Arch. f. path. Anat.*, 1935, 205: 645

A chloride secreting papilloma in the gall bladder. A B KERR and A C TENDRIM. *Brit. J. Surg.*, 1936, 23: 615

Some surgical aspects of disease of the gall bladder. F A COLLIER and I BOYS. *J. Michigan State M. Soc.*, 1936, 35: 10

Surgery of the gall bladder and biliary tract. F GLENN. *Ann. Surg.*, 1936, 104: 77

Experimental studies on cholecystectomy and cholecystostomy. A SIVARI. *Chn. chir.*, 1935, 11: 1005 [446]

The late results of 1,046 cholecystectomies at the surgical clinic of the University of Giessen with follow-up investigations from 1899 to 1931. K G STAIR. 1935 Giessen, Dissertation [447]

The classification and pathogenesis of abscess and stricture, generalized and partial of the extrahepatic bile ducts. L MINICCI DI ROSO. *Sperimentale*, 1935, 80: 593 [448]

Compression of the ductus choledochus by a large lymph node above the pancreas, chronic icterus. PICOT. *Mém. l'Acad. de chir.*, 1935, 61: 1355

The importance of studying the glucose, protein, and fat metabolism in icterus due to choledochus obstruction. C I CUFFICA CAVALLOTTI and L M DOTTI. *Rev. Assoc. med. argent.*, 1935, 49: 1201

Common duct injuries and reconstruction. J I FENN. *J. Iowa State M. Soc.*, 1936, 26: 1

A case of isolated contusion of the pancreas, operation, recovery. J VAPANGOT. *Bull. et mém. Soc. nat. de chir.*, 1935, 61: 1275

The value of nitrogen determinations in acute pancreatic diseases. J BLPNHARD. *Deutsche Ztschr. f. Chir.*, 1935, 245: 308

The results of operative treatment for pancreatic diseases. J G KNOFLACH. *Med. Klin.*, 1935, 2: 1037

Acute abdominal syndrome due to pancreatic apoplexy coincident with aneurism of the abdominal aorta. L BAZY and J CALVET. *Mém. l'Acad. de chir.*, 1935, 61: 1336

Post-traumatic suppurative pancreatitis. P HUET. *Mém. l'Acad. de chir.*, 1935, 61: 1370

Acute pancreatitis in a child of twelve. F J RONCORONI. *Bol. Soc. de ciruj. de Rosario*, 1935, 2: 281

The treatment of acute pancreatitis. I OBERHOLZER. *Schweiz. med. Wochenschr.*, 1935, 2: 669

Chronic traumatic pancreatitis. R SOUFAULT. *Mém. l'Acad. de chir.*, 1935, 61: 1366

Hemorrhagic pancreatitis in an eight year old child. E. St. JOY. *Semana méd.*, 1935, 42: 1687

Pancreatic fistula, a case with intubation of Wirsung's duct. W H SYDER, JR., and R. LITTM. *Surg., Gynec. & Obst.*, 1936, 62: 57

Histological changes in the pancreas of the dog under the influence of secretine and of maceration of the duodenal mucosa. G ALBOT and M BOLGERT. *Ann. d'anat. path.*, 1935, 12: 919

Pancreatic cysts. RUETZ. *Zentralbl. f. Chir.*, 1935, p. 2495

A rare type of diffuse carcinoma of the pancreas with unusual metastases. R A WILLIS. *J. Path. & Bacteriol.*, 1936, 42: 203

The surgical treatment of carcinoma of the head of the pancreas and of the ampulla of Vater. E S JUDD and M T HOERNER. *Arch. Surg.*, 1935, 31: 937 [448]

Combined rupture of the spleen and kidney. G BACHY. *Mém. l'Acad. de chir.*, 1935, 61: 1403

Splenomegaly. W J MAYO and C H MAYO. *Rev. med. y ciruj. de la Habana*, 1935, 40: 891

- Splenectomy for splenial splenomegaly W STARK Arch. Schiffs- u. Tropenhyg. 1935, 39, 374
- Splenectomy for thrombocytopenic purpura G SMITH Brit. M. J. 1935, 11, 137
- Splenectomy and re-examinations of persons subjected to it L WILSON, M. L. and G. Greenagh d. Med. u. Chir. 1935, 44, 3 [479]

Miscellaneous

- Acute upper abdominal pain J C STOKES Med. J. Australia, 1935, 5
- Pain in the abdomen, clinical significance and consideration of relief L D SVOAR Med. Clin. North Am. 1935, 19, 1112
- Unilateral colic, lymphatic type of appendicitis, and mesenteric lymphangitis. Jahrb. f. Kinderh. 1935, 145, 330
- Internal hernia through the foramen of Winslow J. L. DAVIDSON Australia & New Zealand J. Surg. 1935, 5, 333

Right splenopneumothorax and asymmetry in a case of total left eversion of the diaphragm J B GALLAGHER Boston Med. 1935, 4, 1770

Peritoneal hemorrhages of genital origin occurring during acute appendicitis J CORRALONZA Bol. Soc. Obst. et de gynec. de Par. 1935, 44, 503

An anatomical and clinical study of four cases of pylophlebia L. BARONNA, V. FORT, and A. LONCHET Ann. d'obst. p. 1935, 93

Retroperitoneal hematomas C. C. FALCETTA HARV. Hosp. Tnl. 1935, p. 973

Retroperitoneal cyst with malignant degeneration P. L. MINETZ Ann. d'obst. p. 1935, 945

Closures without drainage in operations for calcified hydatid cysts of the abdomen V. SOLARI Bol. y trib. Soc. de chir. de Buenos Aires, 1935, 9, 1061

Vagabonding intraperitoneal lipoma incarcerated in the pelvis HUBER, JOYNER, and REVOCCO Ann. d'obst. p. 1935, 95

GYNECOLOGY

Uterus

Accidental infections in hysterography R. SOLAI Gynecologie, 1935, 34, 601

Two rare anastomoses of the cervix T. REZKI Zentralbl. f. Gynec. 1935, p. 350

Presidential note P. A. MAGUIRE Australian & New Zealand J. Surg. 1935, 5, 335

The choice of operation in the treatment of genital prolapse J. F. CURRYRAME Irish J. M. Sc. 1935, 1, 24

The treatment of complete prolapse of the genitalia L. P. BOTTARO Arch. uruguayas de med. chir. y gynecol. 1935, 7, 403

Total colectomy as treatment in certain cases of prolapse C. CARRO Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 609

Vaginal hysterectomy as the treatment of uterine prolapse MORGENTHAU and CASALTA Bol. Soc. d'obst. et de gynec. de Par. 1935, 44, 596

When is surgery indicated in retrodisplacement of the uterus? G. H. GARDNER Am. J. Obst. & Gynec. 1935, 30, 596 [456]

Inversion of the uterus G. TILMANT Rev. de chir. Bucharest, 1935, 31, 80

Studies on the function of the uterine musculature L. KRAUS Ztschr. f. Geburtsh. Gynecol., 1935, 273

Uterine response to pituitins M. R. WHITE and J. P. PRATT Radiology 1935, 30, 7

Dysfunctional uterine bleeding C. MACCARLANE South M. J. 1935, 30, 3

Ecchyma uterini hemorrhagiae J. K. SMITH Texas State J. M. 1935, 3, 509

The treatment of uterine hemorrhage of benign origin with radium H. H. JAMES J. Lancet, 1935, 30

The treatment of carcinoma in PAOLA Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 70

The treatment of chronic cervical infection by electric coagulation G. CURTIS Gynecologie, 1935, 34, 630

Adenomas of the uterus presenting in the cervix A. LARROUJ, J. MONTPELLIER, and P. LAFAYETTE Gynec. et obst. 1935, 3, 300

Acute generalized peritonitis in a patient with complete fibrosclerosis of the uterus a. th. large infected hemorrhagic ovarian cyst, recovery following subtotal hysterectomy La FOLLIAUX Compt. rend. Soc. franç. de gynec. 1935, 3, 373

Degenerated fibromas, possible role of irradiation therapy JEANVIER and ROBERT Bol. Soc. d'obst. et de gynec. de Par. 1935, 44, 373

Miscellaneous in the body of the uterus of cervical neoplasms three years after irradiation therapy C. CURTIS and K. SUTCHER Gynecologie, 1935, 34, 643

The morphology of recurrent tumors of the cervix following resection and radium irradiation W. W. GARY, M. J. Zlotch, f. Krebsforsch. 1935, 43, 64

Conservative vaginal hysterectomies P. ULLICH Compt. rend. Soc. franç. de gynec. 1935, 3, 338

Diffuse endometritis of the uterus G. CURTIS Gynecologie, 1935, 34, 630

Endometritis on the ligamentous retinaculum uteri W. C. BUCK. Am. J. Surg. 1935, 3, 105

The histogenesis of endometritis, with reference to rare localization in the middle third of the thigh E. W. MANNERS Arch. f. Gynec. 1935, 30, 67

A contribution to the study of multiple malignant tumors carcinosarcoma of the uterus C. DAVIES and S. LARABEE Rev. franç. de gynec. et d'obst., 1935, 30, 83 [451]

The early clinical diagnosis of carcinoma of the cervix H. EISELMANN Wien klin. Wochenschr. 1935, 1478

Spontaneous healing of carcinomas O. HAPPEL Med. Klin. 1935, 330

The treatment of cancer of the cervix L. P. BOTTARO Arch. uruguayas de med. chir. y gynecol. 1935, 7, 511

The present status of treatment of cancer of the cervix of the uterus by means of X rays and radium, and our experience J. L. MOURMAY and F. VIEHMEIER Bol. Soc. de obst. y gynec. de Buenos Aires, 1935, 14, 340

Irradiation therapy in carcinoma degeneration of fibromas JEANVIER Presse med., Par. 1935, 43, 7

The so-called Stockholm method and the results of treatment of carcinoma of the uterus at Radonbrennst. J. HETTMAN Wien klin. Wochenschr. 1935, 1478 [451]

The superiority of surgical treatment in cancer of the cervix J. L. FAIR Rev. med. y chir. de la Habana, 1935, 40, 745

The prognosis in carcinoma of the cervical stump after subtotal hysterectomy A critical analysis of thirty-eight cases J. R. NUTTALL and T. F. TONE J. Obst. & Gynec. Brit. Emp. 1935, 42, 160 [452]

Sarcoma of the uterus J. W. VANDER. Am. J. Surg. 1935, 5, 81

Regulation of menstruation following supravaginal amputation of the uterus for myoma in pseudoleiomyosarcoma. G. JA. KEY. *Magy. Nőgyógy.* 1935, 4, 73.

The treatment of menstrual disorders. F. C. HANCOCK. *Pennsylvania M. J.* 1935, 39, 231.

The treatment of dysmenorrhea. E. J. ZANUSCH. *Med. Rec. New York*, 1935, 143, 11.

The treatment of dysmenorrhea by alcohol injection. A. A. DAVIS. *Lancet*, 1935, 230, 80.

Severe primary dysmenorrhea; relief by resection of the superior hypogastric plexus. F. B. WYCKOFF. *New York State J. M.* 1935, 35, 9.

Treatment of metrorrhagia by diathermy to the pituitary. P. AVELLA. *Gynecologie*, 1935, 34, 729. [432]

Irradiation of the pituitary gland in the treatment of menorrhagial symptoms. C. G. COLLINS, E. P. THOMAS, and L. J. MINAYLIE. *Am. J. Obst. & Gynec.*, 1935, 3, 3.

Reconstruction of the functional menstrual canal. F. STRAUSS. *Zentralbl. f. Gynec.*, 1935, p. 2572.

The action of female sex hormones on the calcitonin of the blood. S. SALVENDY. *Gynecologie*, 1935, 1939. [433]

The effect of the sex hormones on the apocrine glands. J. N. ELLIOTT. *Zentralbl. f. Gynec.* 1935, p. 2747.

The effect of sympathetic denervation upon ovulation and estrus in the rat. H. G. SCHWARTZ and C. L. BUCKING. *Am. J. Obst. & Gynec.* 1935, 31, 133.

Experimental production of ovarian refractoriness to anterior hypophyseal stimulation in the monkey. F. L. HILAR, R. REITS, and H. L. FRYDOL. *Endocrinology*, 1935, 30, 40.

Fundamental sterility in the development of gonadotropic response in the immature guinea pig and rat. S. C. FRIED and A. COENIG. *Endocrinology*, 1935, 30, 81.

A changing gynecology and consideration of gynecological errors. E. DUNLAP. *South. M. J.* 1935, 30, 37.

The embryonic ligament of the pelvis in women. W. E. A. HUGHES-JONES. *Australia & New Zealand J. Surg.* 1935, 5, 37.

Is the oval or female type pelvis a racial manifestation? H. THOMAS. *Am. J. Obst. & Gynec.* 1935, 3, 7.

The relief of pain arising in the female pelvis. J. P. GREENHILL. *Med. Clin. North Am.* 1935, 9, 3.

The treatment of pelvic pain in women by resection of the superior hypogastric plexus. A report of thirty-nine cases. E. A. KROGEL. *J. Med. Cincinnati*, 1935, 6, 179.

Gynecological application of nerve blockade. G. BAUCHERT. *Gynec. et obst.* 1935, 3, 430.

Preventive treatment of phlebitis of the inferior vena cava in gynecological surgery. G. COTTE and M. BOULET. *Gynecologie*, 1935, 34, 634.

Pelvic varices in the female: critical study. J. POGGIO. *Arch. ginecologica de stud. cirurg. y espec.*, 1935, 7, 185.

Chronic hypochondriac ascends in women. L. A. ORAY and M. M. WITKOWSKY. *Am. J. Obst. & Gynec.* 1935, 31, 3.

Inflammatory diseases of the female genitalia. J. KULL. *Gynec. et obst.* 1935, pp. 1, 30, 1150.

The treatment of gynecological infections. G. DUNN. *Med. Welt*, 1935, p. 123.

The treatment of pelvic inflammation by instillation of acetyl-beta-methylcholine-chloride. A. JACOB. *Am. J. Obst. & Gynec.* 1935, 31, 93.

The treatment of acute inflammatory diseases of the female genitalia and the use of drainage in gynecological operations. J. NOVAK. *Therap. d. Gynäk.* 1935, 71, 137.

New observations and viewpoints on genital tuberculosis. P. CARMICHAEL. *Zentralbl. f. Gynec.*, 1935, p. 2833.

Genital tuberculosis. P. PARRY. *J. de med. de Bordeaux*, 1935, 117, 873.

Phenomenon of pelvic infection in women. P. THOMAS. *Am. J. Obst. & Gynec.* 1935, 3, 70.

The treatment of gonorrhea in the female with Novars. H. O. LOOM. *Dermat. Ztschr.* 1935, 73, 144.

A case of subacute endometritis. E. TOLSON. *Resp. Tid.* 1935, p. 653.

Abortion and its use in gynecology. V. KRAVCHENKO. *Gynec. et obst.* 1935, 31, 435.

Ultra-short wave therapy in gynecology. A. BERTIN. *Magy. Nőgyógy.* 1935, 4, 174.

The latest treatment in pelvic diseases. L. D. DICKER. *Colorado Med.* 1935, 33, 6.

Extermination of the small pelvis. F. DALLS. *Zentralbl. f. Chir.* 1935, p. 2459. [434]

Sterility. P. N. CHARNICK. *J. Oklahoma State M. Ass.* 1935, 40, 5.

Sterility. P. PAPPE. *J. de med. de Bordeaux*, 1935, 117, 873.

Constitution and sterility. M. SCHENKEL. *A. G. PERALTA RAMON, and I. CRAMER DE UNION. Gynec. et obst.*, 1935, 31, 404.

The subject of periodic sterility in women. G. COTTE. *Gynecologie*, 1935, 34, 601.

Is the so-called "male period" trustworthy? L. A. FACK. *West J. Surg. Obst. & Gynec.*, 1935, 44, 26.

Clinical experiences with surgical sterilization. A. MAYER. *Med. Klin.* 1935, 3, 3.

The operative treatment of female sterility: tubal implantation. E. von GRAFF. *J. Soc. State M. Soc.* 1935, 36, 31.

A résumé of 273 cases of surgical sterilization. C. B. LULL. *Am. J. Obst. & Gynec.* 1935, 31, 300.

OBSTETRICS

Pregnancy and Its Complications

Biological diagnosis of pregnancy. A. OOSTERHUIS. *Gynec. et obst.* 1935, 31, 326.

Intradermal test for pregnancy. B. GRIFFIN. *Am. J. Surg.* 1935, 33, 30.

Antipartum care. M. F. KATZ. *New England J. Med.* 1935, 2, 4, 103.

Practical prenatal care. B. C. OYKINS. *Kentucky M. J.* 1935, 34, 5.

Koenig's ray examination of the obstetrical patient. C. R. JOHNSON. *West J. Surg. Obst. & Gynec.* 1935, 44, 1.

Some cases of extra uterine pregnancy. HICUTANO DE SA. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 348.

Interperitoneal hemorrhage due to rupture of an extra uterine fetus in pregnancy. J. GIRAUD. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 350.

A case of ruptured interstitial pregnancy. F. PARY. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 353.

Ruptured interstitial pregnancy: subtotal hysterectomy recovery. J. LAMON. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 358.

Two cases of extramembranous pregnancy. D. B. AYLA. *Boulevard med.* 1935, 47, 1464.

Ruptured tubal pregnancy, operative. W. T. FORTNER. *Bull. Soc. de chir. de Rouen*, 1935, 2, 215.

Maternal and fetal circulation in the human placenta. R. SEARREN. *Ztschr. f. Anat.*, 1935, 65, 63.

Two cases of detachment of the normally inserted placenta, parallelism in the etiology and treatment of these two cases VERDEUIL. *Bull Soc d'obst. et de gynec. de Par.*, 1935, 24 607

Placenta accreta with invasion of the uterine wall up to the serosa R SCHOCKAERT *Bruxelles-med.*, 1935, 16 100

Rupture of the placenta A MUSCHIK *Zentralbl f Gynaek.*, 1935, p 1940

Uteroplacental hemorrhage of traumatic origin, second ary toxic syndrome. ANDERODIAS and PÉRY. *Bull Soc. d'obst. et de gynec. de Par.*, 1935, 24 556

Limits of conservation in uteroplacental apoplexy R. MANON. *Bull Soc d'obst. et de gynec. de Par.*, 1935, 24 567

On the origin of the amniotic fluid H ACOSTA-SISON. *Am J Obst. & Gynec.*, 1936, 31 139

The intra uterine carbohydrate metabolism of the fetus B SZENDI and G PAPP. *Arch. f Gynaek.*, 1935, 159 432

Radiological diagnosis of fetal death during pregnancy A. C. KUTZ. *Bol Soc. de obst. y ginec. de Buenos Aires*, 1935, 14 683

Thyroid function during pregnancy and the test for thyroxine hormone. W NEUWEILER. *Arch f Gynaek.*, 1935, 159 574

Thyroid function during pregnancy and the test for thyroid hormones K J ANSELMINO and F HOFFMANN. *Arch f Gynaek.*, 1935, 159 580

Physiological changes in the uterus associated with pregnancy H F TRAUT and C M McLANE. *Surg., Gynec. & Obst.*, 1936, 62 65

A protective shield for the prolapsed cord W F MENGER. *Am J Obst. & Gynec.*, 1936, 31 153

Rupture of the uterus at the twenty-fifth week of pregnancy D BAIRD. *Glasgow M J.*, 1936, 125 14

Pernicious vomiting of pregnancy J BAZÁN and R DUBROVSKY. *Bol Soc de obst. y ginec de Buenos Aires*, 1935, 14 702 [455]

Pyelitis gravidarum G NORDOFF. 1934 Muenster 1 W Dissertation

The toxemias of pregnancy and nephritis J COURTOIS and R LECOQ. *Gynecologie*, 1935, 34 665

The recurrence of toxemia A J B TILLMAN. *New York State J M.*, 1936, 36 116

Late renal injury following toxemia and the effect of subsequent pregnancies on these kidneys G EFFEMANN. *Arch f Gynaek.*, 1935, 159 493

Numbul in the treatment of pre-eclampsia and eclampsia J W ROSS. *Am J Obst. & Gynec.*, 1936, 31 110

A case of acute tetanus in a pregnant woman, intensive serum therapy, recovery P HARDOUIN. *Bull et mem Soc nat de chir.*, 1935, 61 1322

Vaccination during pregnancy as a prophylaxis against puerperal infections J B BERNSTEIN and R L OTTEN. *Am J Obst. & Gynec.*, 1936, 31 37 [455]

Tuberculosis diabetes, and pregnancy ANDERODIAS and PÉRY. *Bull Soc. d'obst. et de gynec. de Par.*, 1935, 24 570

Graves' disease and pregnancy I BRAM. *Pennsylvania M J.*, 1936, 39 239

Arachnoiditis in pregnancy J J HILTON. *Am J Obst. & Gynec.*, 1936, 31 159

Heart disease complicating pregnancy H C F DONOFRAN. *Brit M J.*, 1936, 1 104

Intestinal obstruction in pregnancy and labor W E MAYER. *Texas State J M.*, 1936, 31 566

Diabetes in pregnancy H I BECKMAN. *J Indiana State M Ass.*, 1936, 29 23

Pregnancy glycosuria and diabetes in pregnancy T HEYEMANN. *Ztschr f Geburtsh u Gynaek.*, 1935, 111 149 [455]

Kidney stones and pregnancy G TSUTSUOPILOS. *Zentralbl f Gynaek.*, 1935, p 2366

A case of large tubal cyst causing torsion during pregnancy K A HOFFSTRÖM. *Finska Läk. Sällsk Hdl.*, 1935, 78 315

Tumors and pregnancy MASCIOTTA and BOEFO. *Bol Soc de obst. y ginec. de Buenos Aires*, 1935, 14 675

Tumors in pregnancy P L BORRÁS. *Bol Soc de obst. y ginec de Buenos Aires*, 1935, 14 725

The attitude of the obstetrician to surgery during pregnancy R M CORBET. *Irish J M Sc.*, 1936, 121 16

The technique of artificial interruption of pregnancy E ANDERES. *Helvet med Acta*, 1935, 2 477

Modern indications for therapeutic abortion from the neurological standpoint. T H HARRIS. *Texas State J M.*, 1936, 31 554

Cardiac indications for therapeutic abortion W G REDDICK. *Texas State J M.*, 1936, 31 556

Modern indications for therapeutic abortion in nephritic complications J KOPECKY. *Texas State J M.*, 1936, 31 560

Modern indications for therapeutic abortion in pulmonary complications W S HORN. *Texas State J M.*, 1936, 31 563

Interruption of incompatible pregnancy before fetal viability, a new concept and a new operative method E A BOERO. *Gynec. et obst.*, 1935 32 502

A thousand cases of abortion. T N PARISH. *J Obst. & Gynec Brit Emp.*, 1935, 42 1107 [456]

Sterility following a single abortion L BEPUTTI. *Ginecologia*, 1935, 1 1213

The course, diagnosis, and prophylaxis of abortion E BRANDSTREP. *Nord med Tidskr.*, 1935, pp 1577, 1617

The effect of progestin and estrogenic substance on human uterine contractions the value of progestin in the treatment of habitual and threatened abortion F H FALLS, J E LACKNER, and L KROHN. *J Am. M Ass.*, 1936, 106 271

Subtotal conservative hysterectomy for abortion and rupture of the vagina E T LASTRA and A M BREA. *Bol Soc de obst. y ginec de Buenos Aires*, 1935, 14 751

Observations regarding perforations of the uterus and their treatment based on the material of the obstetrical and gynecological section of the General State Hospital in Lemberg during the last five years L GERHARDT. *Ginec. polska*, 1935, 14 627 [456]

Labor and Its Complications

The preliminary stage of labor B G HAMMOND. *J Missouri State M Ass.*, 1936, 33 17

Delivery by the physician, critical study J KPEIS. *Gynec. et obst.*, 1935, 32 481

The treatment of delayed birth R BEFC. *Zentralbl f Gynaek.*, 1935, p 2483

Induction of labor by rupture of the membranes E M BLAIR. *Canadian M Ass J.*, 1936, 34 49

Is the provocation of labor a permitted procedure? P PASTILLIS. *Bruxelles-med.*, 1935 16 126

Correlation between the shape of the female pelvis and the clinical course of labor A V PETTIT, I H GARLAND, R D DEAN, and P SICKMAYER. *West J Surg, Obst. & Gynec.*, 1936 44 1 [457]

The treatment of breech presentations, with special reference to cases of extended legs and arms J W BEECH. *C. M. MARSHALL, D. ROY, A. BOENE, and others. Proc Roy Soc Med, Lond.*, 1936, 29 205

Spontaneous contraction delivery in breech presentation. E. T. RICHMOND. *Am. J. Obst. & Gynec.*, 1935, 31: 29.

Prostapic of the cord, manual dilatation and version; rupture of the uterus; hysterectomy; recovery. GORRIS and MEYER. *Bull. Soc. d'obst. et de gynec. de Par.* 1935 34, 361.

Severe dystocia due to fibrosis of the cervix. R. MAMORE. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 356.

Reflections on the method of DeLamaze. KOSKOVIC. *Bull. Soc. d'obst. et de gynec. de Par.*, 1935, 34, 352.

Calporrhoea during labor. HIZACILIANO DE SA. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 347.

Nine and one half years' experience with cesarean section at the University of Iowa. W. F. MENEZES. *J. Iowa State M. Soc.*, 1935, 36: 4.

Indications for low cesarean section with breech presentation. BRINDA and LANTIER. *Gynec. et obst.*, 1935, 31: 385.

Low cesarean section following failure of forceps: bilateral cranial osteotomies recovery. M. REITER and C. MAMARE. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 354.

Contracted pelvis, obstructed vertex—ectopic cross at pregnancy of eight and one half months; low cesarean section. Infant infant. ARONSON and MEYER. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 357.

Artificial lacrima of the lower segment of the uterus in abdominal cesarean section. J. A. BICKER and J. LEON. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 370.

Spontaneous delivery by patients who had previously had a cesarean section. A. OFEROS and MEYER. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 351.

Spontaneous delivery with rupture of the lower uterine segment in a para II who had had a cesarean section at her first labor. C. VALLERIE. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 374.

Hemorrhage in the third stage of labor. S. VIMAKOVIC. *Iliec Vjesnik*, 1935, 32: 301.

A study of the blood loss in the third stage of labor and the factors involved. J. B. PASTOR. *Am. J. Obst. & Gynec.* 1935, 31: 78.

Amelioration of birth palsy with rectal. H. GEMER. *Mamarech & Gebertsch. u. Gynack.* 1935, 3: 2.

Newer attempts at anesthesia during labor. H. BUELLING. *Schmerz*, 1935, 8: 60.

Obstetrical anesthesia: local infiltration. W. Z. BRANSON. *South M. & S.* 1935, 9: 19.

Maternal and fetal death during delivery. S. FLEISS. 1935. *Leques u. Wien, Deutsche*

Puerperal infection. E. O. GALLAGHER. *Monatshefte f. Geburtsh. u. Gynack.* 1935, 30: 64.

An unusual case of postpartum infection. I. B. KASSIRER. *Am. J. Obst. & Gynec.* 1935, 31: 153.

Postpartum pelvic peritonitis become generalized. Strickland drainage rapid recovery. J. LAURE. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 370.

The Elliott treatment in puerperal infection. J. H. MOORE. *Am. J. Obst. & Gynec.* 1935, 31: 147.

Gonorrhea. M. L. PIERCE and A. MOORE. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 359.

Extensive perinephritic phlegmon following labor. P. MONROE, E. LAURE, and P. GEMER. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 359.

Death six hours after laborious extraction of a very large dead and anastomosed infant: traumatic or electrical shock. VANDERLIND, MAMORE, and MEYER. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 352.

Newborn

Diabetes twice with unusual difference in weight. A. SCHAF. *Wiener. Oeffentl. Zeit.* 1935, 3: 1214.

Infants gravis neonatorum. I. P. SOWAT. *Am. J. Dis. Child.* 1935, 31: 42.

Miscellaneous

The possibility of improving obstetrical delivery. H. VERNER. *Zeitsch. f. Geburtsh. u. Gynack.* 1935, 3: 131.

The unusual occurrence of various obstetrical complications and abnormalities. R. PANDOR. *South M. J.* 1935, 30: 31.

Water concentration of the blood during pregnancy labor and the parturition. F. W. OBY 37 and F. D. PLASS. *Am. J. Obst. & Gynec.* 1935, 3: 6.

The thyroid gland and lactation. J. STREETER. *Zentralbl. f. Gynack.* 1935, 3: 130.

Tubercle bacilli in mother's milk and the fat of infant nursed by mothers with open tuberculosis. A. J. BURRIS. *Am. J. Dis. Child.* 1935, 31: 793.

The late of our obstetric patients in subsequent pregnancies and labors. J. J. LLOYD-MONROE. *North M. J.* 1935, 30: 73.

The late of our obstetric patients in subsequent pregnancies and labors. J. J. LLOYD-MONROE. *North M. J.* 1935, 30: 73.

The personal factor in maternal mortality. H. O. VANDERLIND. *Lithburg M. J.* 1935, 45.

The value of gonadotropin hormone tests in the diagnosis and prognosis of chromophilic leukemia. J. LUCY. *Wien. Zeitbl. f. Gynack.* 1935, 3: 130.

Observations on the concentration of anterior pituitary like hormone in the urine in chromophilic leukemia, with the report of a case. J. M. LLOYD. *Am. J. Obst. & Gynec.* 1935, 3: 25.

Hydatidiform mole and bilateral reaction: report of two cases, one of which was of embryonic form. I. LAURE. *Vierteljahrsschr. f. Geburtsh. u. Gynack.* 1935, 30: 501.

Puerperium and Its Complications

Experimental contribution on the relationship between the follicles and the uterus bodies in the puerperal state. C. CAVI. *Ginecologia*, 1935, 184.

Complete toleration to a placenta molar cysts after expulsion of the fetus. L. JACOB. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 351.

GENITO-URINARY SURGERY

Adrenal, Kidney and Ureter

On the biological way of adrenal cortical preparation using white rats and mice. G. WIDMANN. *Acta med. Scand.*, 1935, 27.

The clinical aspects of destruction of the adrenal glands. G. L. WELLEN. *J. Virginia M. Month.* 1935, 6: 993.

A case of hemorrhage into the suprarenal glands the newborn. F. J. PETERLIN and L. W. 1937. *Bull. Soc. d'obst. et de gynec. de Par.* 1935, 34, 353.

The suprarenal cortex syndrome: with adrenal hypoplasia. J. MAMARE. *Acta med. Scand.* 1935, 67: 99.

Tuberculosis of the adrenal glands in child of birth with necropsy. J. PETERLIN. *Am. J. Dis. Child.* 1935, 3: 13.

- Hypernephroma R GIOTTO and V NACIF *Rev Assoc med argent*, 1935, 49 1160
- An unusual type of pulmonary metastasis in hypernephroma. E P PENDERGRASS and P J HODES *Radiology*, 1936, 26 99
- Pulmonary metastasis from hypernephroma, with ulceration into a bronchus simulating primary bronchial carcinoma, report of a case. C K MAYTUM and P P VINSON *Arch. Otolaryngol.*, 1936, 23 101
- Intravenous pyelography in a series of cases after transplantation of the ureters G G TURNER and J H SAINT-BRIT *J Surg*, 1936, 23 580 [459]
- The rôle of anomalies of the kidney and ureter in the causation of surgical conditions R GUTIERREZ *J Am M Ass*, 1936, 106 183
- Ectopic pelvic kidney G J THOMAS and J C BARTON *J Am M Ass*, 1936, 106 197 [459]
- Hypoplastic kidney P VALDONT *Policlin.*, Rome, 1935, 42 sez chir 717
- Renal insufficiency in urinary surgery J SALLERAS *Semana méd.*, 1934, 42 1885
- Low reserve kidney C H PECKHAM and M L STOUT *Am J Surg*, 1936, 31 92
- The effect of renal denervation on the blood pressure in experimental renal hypertension W M ARNOT and R J KELLAR *J Path & Bacteriol.*, 1936, 42 141
- Renal lesions in staphylococcus aureus infections and their relation to acute glomerular nephritis. R H RIGDON *Arch Int. Med.*, 1936, 57 117
- Carbuncle of the kidney R C GRAVES and L E PARKINS *J Urol*, 1936, 35 1
- Carbuncle of the kidney A review of the literature discussion of unilateral localized lesions of the kidney, and the report of a case P H McNULTY *J Urol*, 1936 35 15
- Resection of the kidney for localized pyonephrosis J R STITES *Kentucky M J*, 1936, 34 28
- The genesis of renal calculi—pathologicophysiological considerations A. RANDALL *New York State J M*, 1936, 36 1
- An analysis of the effectiveness of nephrostomy in the treatment of large renal calculi. V S COUNSELLER and M T HOERNER *J Urol*, 1936, 35 21
- Polycystic kidneys with bilateral perinephric abscesses Bilateral operation Report of a case F P TWINEM *J Am M Ass*, 1936, 106 206
- The relationship between perirenal hematoma with essential hematuria and perarteritis nodosa I D'AVANZO *Clin chir*, 1935, 11 903
- Epithelioma of the kidney D COLLAS and R L MASCIOTTA. *Rev méd-quirúrg de patol femenina*, 1935, 4 630
- Cancer of the kidney, with a report of cases B W TURNER *South M J*, 1936, 29 63
- Liposarcoma of the kidney J S MCCARTY and H M N WYNNE *Am J Cancer*, 1936, 26 151
- The embryological and clinical aspect of double ureter A. B HAWTHORNE *J Am M Ass*, 1936, 106 189
- Canadian M Ass J, 1936, 34 21 [459]
- Ureterocele E R. WILLIAMS *Brit J Radiol* 1936, 9 59
- The rectification of errors in the diagnosis of movement of ureteral calculi W B FIROR. *Am J Roentgenol*, 1936, 35 70
- Paramedian, laterovesical route for removal of calculi from the lower end of the ureter J FRANCOIS *Bruxelles-méd.*, 1935, 16 247
- Transplantation of the ureters into the bowel P GONZALEZ LEQUERICA *Rev med y cirug de la Habana*, 1935, 40 797
- Aseptic uretero-intestinal anastomosis C C HIGGINS *Ohio State M J*, 1936, 32 17
- Experimental unilateral uretero intestinal anastomosis Three years' survival after unilateral uretero-colostomy followed by opposite nephrectomy A BOLLIGER and P N WALKER-TAYLOR *Australian & New Zealand J Surg*, 1936, 5 268

Bladder, Urethra, and Penis

- Studies in bladder function II The sphincterometer I SMOYNS *J Urol*, 1936, 35 96
- The technique of pneumocystic radiography L REBAUDI *Semana méd.*, 1935, 42 1415
- A simplified cystometer Elimination of the air cushion in a mercury manometer H M WEYRAUCH, JR. *J Urol*, 1936, 35 103
- A roentgen study of lesions of the urinary bladder P B GOODWIN *Illinois M J*, 1936, 69 58
- Roentgenological diagnosis of urological and gynecological diseases of the female bladder E G CRABTREE, M L BRODNEY, H A KONTOFF, and S R MUELLNER *J Urol*, 1936, 35 52 [460]
- Extrophy of the bladder MARION *Mém l'Acad de chir*, 1935, 61 1352
- Bladder displacement secondary to suppurative arthritis of the hip and osteomyelitis of the pelvic bones in children, operation for impending perforation A B HEPLER *J Urol*, 1936, 35 32
- Spontaneous rupture of the urinary bladder W MORRISON *Brit. M J*, 1936, 1 14
- Syphilis of the bladder E O FINESTONE *Surg, Gynec & Obst.*, 1936, 62 93
- Cystitis emphysematosa R S ROSEDALE *Am J Obst & Gynec.*, 1936, 31 123
- Paravesical dermoid cyst. F GARRIGA y CALLOL. *Rev de cirug de Barcelona*, 1935 5 457
- The importance of early diagnosis of tumors of the bladder J B RUIZ *Rev med y cirug de la Habana*, 1935 40 1111
- A new method of closing suprapubic bladder incisions D M DAVIS *J Urol*, 1936, 35 41
- Injuries of the posterior urethra H W MARTIN *California & West. Med.*, 1936, 44 16
- Congenital obstructions of the female urethra. W E STEVENS *J Am M Ass*, 1936, 106 89
- The management of lesions of the female urethra L W RIBA, F A CHRISTIANSEN, and D K HIBBS *Illinois M J*, 1936, 69 47
- A case of hypertrophic tuberculosis of the urethra H HARTMANN *Rev med y cirug de la Habana*, 1935 40 823
- Contributions on transurethral surgery for obstructive changes at the neck of the bladder T SCHULTHEIS *Ztschr f urol Chir*, 1935, 41 173 [461]
- Phimosis and its operative treatment. R SEEVERS *Zentralbl f Chir*, 1935, p 2290
- An operation for hypospadias D BROWNE. *Lancet*, 1936, 230 141
- Inguinal gland metastases in carcinoma of the penis B S BARRINGER. *J Am M Ass*, 1936, 106 21 [462]

Genital Organs

- The prostatic problem, present status H G BUGBEF *New York State J M*, 1936, 36 102
- The relation of the prostate gland to orthopedic problems W S DUNCAN *J Bone & Joint Surg*, 1936, 18 101
- Prostatic obstruction, a study of 178 cases R IRWIN *Wisconsin M J*, 1936, 35 24

Prostatic obstruction; a comparison of results in fifty transurethral resections and fifty suprapubic prostatectomies W M KRAVITZ Wisconsin M J 1936, 35: 73

Tonic hyperplasia of the prostate gland. R W HARTZ. J Urol 1936, 35: 70

Comments on the treatment of prostatic hypertrophy M. KRAVITZ. Munchen. med Wchnschr 1935, 8: 163 [462]

The treatment of benign prostatic hypertrophy by non-operative method W B LOWE. Cleveland Clin. Quarterly 1936, 3: 1

An improved model of the Brausch-Busseng pouch instrument. R. E. TYLAND. J Urol 1936, 35: 109

The frequency of carcinomatous degeneration in hypertrophic prostates E MINOZZINI. Riforma med 1935, 51: 1662

Trichomonas colonization of the prostate gland A C. DAWSON. Am J Surg 1936, 31: 98

The therapeutic value of prostatic massage with discussion on prostatitis and the significance of proper rectal palpation of the prostate gland V J O'CONNOR. Med Clin North Am 1936, 19: 181

Intraprostatic injections T M. TOWNSEND. J Urol 1936, 35: 75

Electrocoagulation and electrocomy of the prostate KIRCHNER. Zentralbl f. Chir 1935, p 3118

A comparative study of a series of prostatectomies and resections H E. KARNIEN Wisconsin M J 1936, 35: 8

An attempt at treatment of hypotonia by alcoholic injection of the spermatic artery A PROOW. Rev de chir. Par. 1935, 34: 749

Some aspects of testicular physiology D R. McCULLACH. Cleveland Clin. Quarterly, 1936, 3: 5

Medical treatment of ectopy of the testis A. RAYNA. Presse med. Par 1935, 43: 3088

The treatment of undescended testes by the exterior petitary-like principle from the scrotum of pregnancy A GOLDMAN. A. STRAIN and J. LANE. New York State J M 1936, 36: 11

Gonadotrophic hormones in the treatment of imperfectly migrated testes. A W. SERVICE and E. F. BROWN. Lancet, 1935, 280: 335 [462]

Torsion of the testicle and adnexa E. SORRELL. Bull. et memo. Soc. nat. de chir. 1935, 6: 870

Hypertrophic tuberculations of the testis H. MOWEN. Bull. et memo. Soc. nat. de chir. 1935, 6: 860

An interstitial-cell tumor of the testis with hypergonadism in a child of 5 1/2 years C A. STRANIER, E. T. BELL, and A. B. ROSS. Am J Cancer 1936, 30: 141

Experimental production of testicular tumors in the fowl H J. RAO. Am J Cancer 1936, 30: 69

Intra-abdominal displacement of the testes and malignant degeneration E. HERRMANN. Deutsche Zeitsch. f. Chir. 1935, 243: 383

Miscellaneous

Ectopia vesicae, imperforate rectum and anus, true hermaphroditism and other anomalies A H. POTTER. Am J Surg 1936, 31: 178

The surgical treatment of anomalies of the upper urinary tract in children M. F. CAMORIEL. J Am M Ass 1936, 106: 193 [462]

The value of excretion urography A. Z. FIDELL. Illinois M J 1936, 64: 75

The stratification of opaque ligands in urography R. RIMMO. Acta radiol 1935, 10: 716

The diagnosis and treatment of traumatic lesions of the urinary system E. RUTEL. J Indiana State M Ass 1936, 39: 30

Retention of urine in the fetus T. BYRON, Jr. and S. COOPER. J Urol 1936, 37: 93

A graphic illustration of various forms of incontinence M. ALICHA. Am J Surg 1936, 31: 104

The relation of chronic cystitis to infection of the urinary tract R. D. HICKMAN, E. E. ENERT and H. MASTAN. Surg. Gynec. & Obst 1936, 62: 85

A skin test for the diagnosis of gonococcal infections B. C. COOPER. J Urol 1936, 37: 11

Report of the Committee for Survey of Research on the Gonorrhea and Gonococcal Infections. R. B. THOMAS and S. BAYNE JONES. Am J Syphilis, 1936, 20: 369 [463]

The role of acute gonorrheal arthritis in making the lesions of early syphilis. J. E. KIRBY and C. E. W. Am J Syphilis, 1936, 20: 56

The bacteriological effect of levorotatory and racemic beta-crythrotic acid in the urine H. F. HELLMER and A. E. GUTTENBERG. J Urol 1936, 35: 86

The first test in lymphogranuloma inguinale and other types of genital adenitis C. B. GILLOTT. U S Nav M Bull, 1936, 34: 7

Lymphogranuloma inguinale or lymphatic venitis C. F. MARLEY and H. E. BACON. Internat. Clin 1935, 4: 290 [462]

Lymphogranuloma inguinale and chronic bubo L. F. GILLY. U S Nav M Bull, 1936, 34: 1

Congenital contagion of subacute regional lymphogranuloma, suppurfection? E. TARANTILLI. Riforma med 1935, 51: 1543

Lymphogranuloma inguinale as a causative factor in the production of rectal strictures H. J. BEVERLY. J Med Soc New Jersey, 1936, 33: 21

The anorectal phase of lymphogranuloma inguinale A. W. M. MARINO. Ann. Surg, 1935, 102: 1066

The surgical importance of lymphogranuloma—so-called fourth venereal disease. meroben. Darius Nicola-Fry. J HOPKINS. Bull. et memo. Soc. nat. de chir. 1935, 6: 871 [464]

Cancer of the penito-urethral tract C. E. BURTON. South M J 1936, 39: 65

SURGERY OF THE BONES JOINTS MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Myofibrillography R. DICKER, M. LANT, and O. SEIF. Bull. et memo. Soc. nat. de chir. Par 1936, 5: 71

Osteomyelitis in infancy W T. GARDEN. J Am M Ass, 1935, 103: 335 [463]

The diagnosis and treatment of osteomyelitis J O. RANKIN. West Virginia M J 1936, 3: 26

Hypertrophic rod osteitis, a case report J N. RAY. Wisconsin M J 1936, 11: 4

Hereditary osteopetrosis H. Foss. Deutsche Zeitsch. f. Chir 1935, 245: 779 [463]

Osteopetrosis osteolytica J. KATZ. Can. Mx 1936, 33: 673

The diagnosis of osseous bone by galvanometric study F. MAMONTILL. Bull. et memo. Soc. d. chirurgiens de Par 1935, 87: 571

Perforated hipbones J. M. ALLEN and S. RICHARD. Bol. y trab. Soc. de chir. de Buenos Aires, 1935, 49: 41

Some notes on the diagnosis of bone tumors H. R. SEAR. Brit. M J 1936, 49: 49

- Difficulties of diagnosis in fibrocystic osteitis A MARTIN and R. DUCROQUET Bull et mcm. Soc. nat de chir, 1935, 61 1258
- Multiple myeloma V W KOCH and F H KUEGLE. Radiology, 1936, 26 101
- Experimental osteodystrophia fibrosa H HANKE Frankfurt. Ztschr f Path., 1935, 48 171 [466]
- Three cases of generalized osteitis fibrosa with epithelial tumors COENEN Zentralbl f Chir, 1935, p 2583
- Chronic osteomyelitis associated with malignancy M S HENDERSON and H A SWART J Bone & Joint Surg, 1936, 18 56
- So-called Ewing's tumor C STERNBERG Frankfurt. Ztschr f Path., 1935, 48 525
- A case of Paget's disease with multiple bone sarcomas R. KIENBOECK and A SELKA. Beitr. z. klin. Chir, 1935, 162 246
- Radiotherapy of osteosarcomas, personal observations N PUENTE DEANA Rev med y cirug de la Habana, 1935, 40 991
- Late results of heterogenous bone grafts LERICHE Mém l'Acad de chir, 1935, 61 1341
- Osteochondritis J HOETS Australian & New Zealand J Surg, 1936, 5 275
- The relationship of osteochondritis dissecans to trauma T A OUTLAND Am J Surg, 1936, 31 105
- Sudeck's dystrophy RIEDER. Zentralbl f Chir, 1935, p 2791
- The present status of the problem of "rheumatism" and arthritis, a review of American and English literature for 1934 P S HENCH, W BAUER, A A FLETCHER, D GERIST, and others Ann Int Med, 1936, 9 883
- Experimental and pathological studies in the degenerative type of arthritis. W BAUER and G A BENNETT J Bone & Joint Surg, 1936, 18 1
- A case of osteochondromatous arthritis with foreign body in the joint DU BOUCHER, MONTPELLIER, and CHARTON Bruxelles-méd, 1935, 16 77
- Septic joint disease J R REGAN Am. J Surg, 1936, 31 131
- Articular staphylococcosis P MARRI Policlin, Rome, 1935, 42 sez chir 642 [466]
- Streptococcal dissociation in the pathogenesis of chronic rheumatoid arthritis L G HADJIOPOULOS and R BURBANK J Bone & Joint Surg, 1936, 18 19
- Causes of deforming arthritis. J SCHLEMMER. Ortopédies, 1935, 25 42
- The prevention of deformity in arthritis. L T SWAIN J Bone & Joint Surg, 1936, 18 80
- The treatment of gonorrheal arthritis by means of systemic and additional focal heating W BIERMAN and C LEVENSON Am. J M Sc, 1936, 191 55
- The pathology of synovial effusions D H COLLINS J Path & Bacteriol, 1936, 42 113
- Tropical suppurative myositis S PICAZA Rev med. y cirug de la Habana, 1935, 40 969
- A case of progressive ossifying myositis W DOBRZANIECKI Mém. l'Acad de chir, 1935, 61 1333
- Introduction to plastic operations on muscles KOENIG Zentralbl. f Chir, 1935, p 2989
- Spontaneous healing in a case of subcutaneous rupture of a tendon I LINDENSTEIN Zentralbl f Chir, 1935, p 2961
- Painful shoulder, diagnosis and treatment, with particular reference to subacromial bursitis G E HAGGART and H A. ALLEN Surg Clin. North Am., 1935, 15 1537 [467]
- Exostosis of the left sternoclavicular joint simulating an aortic aneurism K G KATRAKIS Zentralbl f Chir, 1935, p 2956
- Congenital anomaly of the coracoid Os coracosternale vestigiale J G FINDER. J Bone & Joint Surg, 1936, 18 148
- Four unusual cases of primary tuberculosis of the scapula, clinical and radiological considerations G MOCITA Policlin, Rome, 1935, 42 sez. chir 655
- Hydatidosis of the scapula E L VILA and N P ESCARY DIEHL Rev méd-quirúrg de patol femenina, 1935, 4 706
- Periscapulohumeral calcification E A VOTTA Semana méd, 1934, 42 1607
- Subdeltoid calcifications M FITTE. Bol y trab Soc. de cirug de Buenos Aires, 1935, 19 1035
- Clinical symptoms due to congenital deformity of the pectoralis major HUBER. Zentralbl f Chir, 1935, p 2987
- Radiological diagnosis of epiphysiolysis of the humerus. FONTÁN MAQUIEIRA. Arch. de med, cirug y especial, 1935, 16 767
- The development of giant-cell tumor in the lower extremity of the humerus H DIONISI Bol y trab Soc. de cirug de Buenos Aires, 1935, 19 1118
- Rupture of the long head of the biceps brachialis H A HARRIS Brit. J Surg, 1936, 23 572
- Traumatic flail elbow J M MUERRA J Am. M Ass, 1936, 106 282
- A case of bilateral congenital superior radio-ulnar synostosis. NÉGRÉ and BARGE Rev d'orthop, 1935, 42 678
- DeQuervain's disease Stenosing tendovaginitis at the radial styloid D C PATTERSON New England J Med, 1936, 214 101
- Two rare carpal anomalies L. LÖNNERBLAD Acta radiol, 1935, 16 682
- The practical significance of solitary chondromas of the metacarpals and phalanges and their treatment. L FRANKENTHAL Arch f klin Chir, 1935, 182 583
- The embryological basis of congenital kyphosis and scoliosis JU GHANNS Zentralbl. f Chir, 1935, p 2974
- Relief of lumbago and sciatica. R O RITTER. Med Clin North Am, 1936, 19 1033
- Costovertebral strain L T BROWN New England J Med, 1936, 214 144
- Sacrarthrogenetic talalgia. I A study of referred pain H. C. PITKIN and H. C. PHEASANT J Bone & Joint Surg, 1936, 18 111
- The rôle of the iliotibial band and fascia lata as a factor in the causation of low back disabilities and sciatica. F R OBER. J Bone & Joint Surg, 1936, 18 105
- Spina bifida. I E STRIS Ann. Surg, 1936, 103 97 [467]
- Spondylose rhizomelique. A WINGFIELD Proc. Roy Soc. Med, Lond, 1936, 29 224
- Rhizomelic spondylitis S LYON Presse méd, Par 1935, 43 2057
- A contribution on spondylolisthesis. J M JORGE and J R. DIETSCH. Bol. y trab Soc de cirug de Buenos Aires, 1935, 19 1093
- Spondylolisthesis M FITTE Bol. y trab Soc. de cirug de Buenos Aires, 1935, 19 1137
- Transitory sacrolithesis P LOMBARD and C. SOLAL Rev d'orthop, 1935, 42 669
- Generalized platyspondylism with localized osteopikilosis. M YVIN Rev d'orthop, 1935, 42 683
- Spastic paraplegia due to Pott's disease. A D CISNEROS and E. O SÁNCHEZ Rev méd-quirúrg de patol. femenina, 1935, 4 671
- Spondylitis ankylopoietica F C GOLDING Brit. J Surg, 1936, 23 484
- Osteomyelitis of the vertebrae G C DALE South. M & S, 1936, 98 13

- Further studies of fixed paralytic pelvic obliquity. L. MAYER. *J. Bone & Joint Surg.* 1936, 8, 87. (1936)
- Otto's disease and other types of internal protrusion of the acetabulum. K. OYAMA. *Osaka Med. J.* 1935, 30, 1001.
- Deforming arthritis of the hip. MOURVOY & JOURNE. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 1066.
- Severe acute gonococcal arthritis of the hip early diagnosis, good functional result. L. H. COCHRAN. *Médec. Acad. de chir.* 1935, 61, 1547.
- The mechanism of development of peculiar deformities of the lower end of the femur. H. STRAUSS. *Ztschr. f. orthop. Chir.*, 1935, 63, 387.
- Suprapatellar rupture of the quadriceps. E. OTTOLENGHI and J. A. FRYCK. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 60.
- Destruction of the semilunar cartilage of the knee. R. B. MURPHY. *J. Indiana State M. Ass.* 1936, 29.
- Chronic post-traumatic arthritis of the knee: synovectomy operation of Hely Gross, recovery. A. F. LAMARCA. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 804.
- Internal lesions of the knee. I. DELITALA. *Riforma med.* 1935, 31, 666.
- Osteochondritis dissecans of the patella. L. A. WERNE and R. PATRICK. *Rev. méd.-quirúrg. de patol. interna*, 1935, 4, 648.
- The pathological anatomy of tuberculosis of the knee joint, with reference to structural changes in the bone tissue of children. W. H. STEED. *Acta med. Scand.* 1935, 87, 99.
- The significance of abscesses in the etiology of bone necrosis. W. WATTS. *Arch. f. orthop. Chir.* 1935, 63, 4.
- Congenital lesions of the tibia. J. MADOLE. *Bull. et méém. Soc. nat. de chir.* 1935, 61, 171.
- Cystic radiolucencies of the tibia. O. CORNELLO. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 64.
- Giant cell tumor of the tibia. A. CICALLO. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 118.
- Post-traumatic pes equinus varus. A. S. M. MARTIN. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 133.
- March foot. D. SLOAN and M. F. SLOAN. *Am. J. Surg.* 1936, 3, 167.
- March foot associated with undescribed changes of the internal condenser and metatarsal bones. I. H. MURPHY. *Arch. Surg.* 1936, 3, 49. (1936)
- Congenital deformities of the navicular cuneiform joints. H. STRAUSS. *Bull. Abn. Chir.* 1935, 63, 390.
- Myositis of the metatarsus. O. CORNELLO. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 5.
- Skeletal changes in rachitic perforating pedis. J. KILGUS and R. FRIED. *Arch. Surg.* 1936, 3.
- Surgery of the Bones, Joints, Muscles, Tendons, Etc.**
- New treatment of acute osteomyelitis. R. E. HICKS. *1935 Am. J. Surg.* 1936, 3, 145.
- Bone grafting. H. F. MACFARLAN. *Irish J. M. Sc.* 1935, 30, 669.
- Emergency diaphysectomy. JONES. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 77.
- Emergency diaphysectomy in acute osteomyelitis. FITZ, HERNANDEZ, VALLA, and GAMBRA. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 616.
- Surgical uses of os parietal os parietal and os crura. S. ORELL. *Médec. Acad. de chir.* 1935, 61, 1576.
- The treatment of exostoses and endostoses. N. KILGUS. *Ztschr. f. orthop. Chir.* 1935, 63, 305.
- The mobilization treatment of rheumatoid arthritis. *Proc. Roy. Soc. Med. Lond.* 1936, 29, 37.
- The treatment of quercetum tumor albus and pseudotumor of tuberculous origin in children. A. DELARAY. *J. Bone & Joint Surg.* 1936, 8, 57.
- Physical therapy in ankylosis with ankylosis correction. J. HANAUER. *Can. Med. Ass.* 1935, 33, 933.
- Tarsus vagabundus in arthropathy of small joints. C. L. WILSON. *J. Bone & Joint Surg.* 1936, 18, 63.
- Secondary replacement of the tendons with free tendon grafts. F. von DANKERMAN. *Zentralbl. f. Chir.* 1935, 3, 306.
- An outline of after-care of injuries to and about the elbow. A. F. HANAUER. *Zentralbl. f. Chir.* 1935, 3, 316.
- Bone defect of the olecranon treated by bone graft. N. W. ROBERT. *Canadian M. Ass. J.* 1936, 34, 64.
- The treatment of club hand due to congenital defect of the radius: a case report. A. DUBOIS. *Ztschr. f. orthop. Chir.* 1935, 63, 307.
- A case of tenodesis of the flexor muscles of the fingers for a main en griffe; pseudo-paralysis of Volkmann. DIAMANT-BENNETT. *Bull. et méém. Soc. d. chirurgiens de Par.* 1935, 37, 54.
- A physiological method of repair of damaged finger tendons. L. BLATT and N. S. RA. *Ann. N. Y. Acad. Sci.* 1935, 3, 35.
- The treatment of the scoliotic patient. A. WITMAN. *J. Am. M. Ass.* 1936, 66, 12.
- The low back problem. A. O. HENRY. *Minnesota Med.* 1936, 9, 46.
- The treatment of Pott's disease. J. DE BRITO and M. B. BERNARD. *Rev. bras. de ciruj.* 1935, 4, 415.
- Osteomyelitis in apical tuberculosis. J. CALVE and M. GALLARD. *J. Bone & Joint Surg.* 1936, 18, 46.
- The surgical treatment of sacrocolitis. L. ALLEN. *J. Bone & Joint Surg.* 1936, 18, 54.
- Deforming osteochondritis of the hip. Pathogenesis and surgical treatment. M. GAMBRA. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 47.
- Deforming arthritis of the hip arthroplastic resection, result at the end of four years. P. VALLA. *Bull. et méém. Soc. nat. de chir.* 1935, 61, 155.
- Arthrodesis of the hip for osteitis in children. A. RICHARD. *J. Bone & Joint Surg.* 1936, 8, 49.
- Report of a case of surgical treatment for intrapneumatic protrusion of the acetabulum. I. F. GREGORY. *J. Med. Soc. New Jersey* 1936, 33, 3.
- High amputation of the thigh and improvement of the stump. G. HONDA. *Chirurg.* 1935, 7, 87.
- Wedge leg traction as an aid in the correction of some stereotyped arthrodic deformities. J. W. WATTS. *South M. J.* 1936, 49, 43.
- Conservative surgical treatment of an osteochondroma of the leg. L. O. LEVIN and O. R. MANDITOKI. *Bol. Soc. de ciruj. de Rosario*, 1935, 9, 1.
- Osteoplastic amputation of the leg. L. BART. *Bull. Bol. Soc. de ciruj. de Rosario*, 1935, 9, 134.
- Subperiosteal chondroplasty in acute osteomyelitis of the tibia in infants. R. A. RIVAROLA and R. DENTONARAY. *Bol. y trab. Soc. de ciruj. de Buenos Aires*, 1935, 9, 600.
- Injury to the cruciate ligaments. F. FLEISCHER. *Zentralbl. f. Chir.* 1935, 63, 311.
- Relief for painful feet. W. H. FISHER. *Med. Clin. North Am.* 1936, 9, 67.
- The treatment of club foot. L. T. BROWN. *J. Bone & Joint Surg.* 1936, 8, 73.
- The surgical management of pes calcaneus. O. L. MILLER. *J. Bone & Joint Surg.* 1936, 8, 69.
- Releasing incision of the tendon plate of the gastrocnemius for correcting neuroarthrogenic pes equinus. R. SCHWAB. *Ztschr. f. orthop. Chir.* 1935, 63, 335.

Physiological tendon transplantation in the foot in infantile paralysis F MOHMSEN Arch f klin Chir, 1935, 182 599

Fractures and Dislocations

Spontaneous fracture in acute and subacute osteomyelitis R. C. TATHAM Lancet, 1936, 230 195

A form of sclerosing osteomyelitis following fractures of the long bones P P SWETT New England J Med, 1936, 214 1

The late infections resulting from war fractures of the extremities SARROSTE Rev de chir, Par, 1935, 54 669 [468]

Delayed fractures or fractures with secondary displacement F MASMONTEIL Bull et mém Soc d chirurgiens de Par, 1935, 27 553

The present status of pseudarthrosis E VON REDWITZ Arch f klin. Chir, 1935, 182 649

Conservatism in delayed callus formation with pseudarthrosis A LORENZ Zentralbl f Chir, 1935, p 2662 [469]

Vitamin D and callus formation J MARA Beitr z klin Chir, 1935, 162 213

The influence of roentgen irradiation on the rate of healing of fractures and the phosphatase activity of the callus of adult bone. E M REGEN and W E WILKINS J Bone & Joint Surg, 1936, 18 69

Osteosynthesis P DUVAL. Mém l'Acad de chir, 1935, 61 1332

Osteosynthesis by means of metallic substances MADIER and FREDET Bull. et mém Soc. nat. de chir, 1935, 61 1286

The tolerance of bone to a metallic foreign body, a contribution to the study of osteosynthesis F MASMONTEIL. Presse méd, Par, 1935, 43 1915

The reaction of bone to metallic substances A LAMBOTTE and J VERBRUGGE Bull et mém. Soc nat. de chir, 1935, 61 1300

Pseudarthrosis and osteosynthesis. H. GAUDIER Mém l'Acad de chir, 1935, 61 1332

The causes of failure in osteosynthesis P FREDET Bull et mém Soc. nat. de chir, 1935, 61 1249

Improvement in the method of boring holes in bones RUECKERT Zentralbl. f Chir, 1935, p 2991

The value of Beck's boring operation for delayed consolidation and pseudarthrosis. L FRANKENTHAL. Arch f klin. Chir, 1935, 184 30

Bone grafts in the treatment of non union J S NORMAN Am J Surg, 1936, 31 160

The beneficial action of Lane's plates KAPFIS Zentralbl. f Chir, 1935, p 2817

Dislocation of the shoulder M J FITTE Bol y trab Soc de cirug de Buenos Aires, 1935, 19 1172

Recurrent dislocation of the shoulder H F MOSELEY Proc. Roy Soc. Med, Lond, 1936, 29 252

Recurrent dislocation of the shoulder O CAMES and O R. MAROTTOLI Bol y trab Soc de cirug de Buenos Aires, 1935, 19 1154

An improved clavicular crutch splint. W KELTON Northwest Med., 1936, 35 15

Paralysis of the radial nerve in fractures of the humerus R E DÓNOVAN and A C AGUIRRE Bol y trab Soc de cirug de Buenos Aires, 1935, 19 1209

Nailing of fractures of the head of the humerus O VOSS Beitr z klin Chir, 1935, 162 190 Zentralbl f Chir, 1935, p 1119

A method of extending a fractured humerus R D WRIGHT Australian & New Zealand J Surg, 1936, 5 283

Treatment of unimpacted fractures of the surgical neck of the humerus J A CALDWELL and J SMITH Am J Surg, 1936, 31 141

Operative treatment of habitual dislocation of the elbow J G KNOFLACH Zentralbl f Chir, 1935, p 2897

Complex fractures of the forearm, fracture of the radius and radio-ulnar dislocation, and fracture of the ulna and radio-ulnar carpal dislocation J GAUTIER Mém l'Acad de chir, 1935, 61 1411

Malunion of Colles' fracture and its surgical correction F G MURPHY Illinois M J, 1936, 69 72

A peculiar syndrome following injuries of the lower end of the bones of the arm R GALEAZZI Arch f orthop Chir, 1935, 35 557

Indications and contra-indications for double wire traction and plaster casts in severe fractures of the lower end of the radius W LHALT Chirurg, 1935, 7 685

Isolated dislocation of the base of the fifth metacarpal N ROBERTS and C T HOLLAND Brit J Surg, 1936, 23 567

Roentgen diagnosis of vertebral diseases GUENTZ Zentralbl f Chir, 1935, p 2975

Avulsion of the transverse processes MATTHES Zentralbl f Chir, 1935, p 2902

Unusual fractures of the spine M C MENSOR and L O PARKER J Bone & Joint Surg, 1936, 18 153

Fracture of the vertebral bodies J SGROSSO and A POGGI Bol. Soc de cirug de Rosario, 1935, 2 305

The statistics and dynamics of vertebral fracture ZOPFF Zentralbl f Chir, 1935, p 2976

Limitation of inspiration following fractures of the thoracic vertebrae SCHMIDT Zentralbl f Chir, 1935, p 2991

The method of development of pelvic fractures V SCHMIEDEN Zentralbl f Chir, 1935, p 2529

Ten years' experience with an abduction splint and early treatment for congenital dislocation of the hip H. HILGENREINER. Ztschr f orthop Chir, 1935, 63 344.

Late results of treatment of congenital dislocation of the hip C H HEYMAN J Am M Ass, 1936, 106 11

The successful treatment of congenital dislocation of the hip with the abduction cast. F BAUER. Wien med Wchnschr, 1935, 2 749

Anterior dislocation of the hip J A MACFARLANE Brit J Surg, 1936, 23 607

A method of treating fractures of the lower limb A L ALLEN Brit J Surg, 1936, 23 537

Fracture of the acetabulum with dislocation of the head of the femur A BRÉCHOT Mém l'Acad de chir, 1935, 61 1425

Fracture of the femur occurring at delivery T E BROWN Canadian M Ass J, 1936, 34 65

Gangrene of the thigh associated with fracture of the femur VALS Bol y trab Soc de cirug de Buenos Aires, 1935, 19 1013

The causes of pseudarthrosis in transcervical fractures in the neck of the femur G ROUSSEAU and C ADAMESTEANU Presse méd, Par, 1935, 43 1940

Fracture of the femur into three fragments, the result of simple orthopedic treatment. R. PETRIGNANI Rev d'orthop, 1935, 42 675

The open treatment of fracture of the neck of the femur ALGLAVE Bull et mém. Soc. nat. de chir, 1935, 61 1267

The technique of nailing in fractures of the neck of the femur H HARTLIEB Zentralbl. f Chir, 1935, p 2668

A method of blind pegging fractures of the neck of the femur, using a Smith-Petersen nail or a bone graft as a means of internal fixation W J COX J Bone & Joint Surg, 1936, 18 134

A case of vertical fracture of the patella, result four years after the Krogus operation L DIAMANT-BERGER Bull et mém Soc. d. chirurgiens de Par, 1935, 27 546

Congress of the leg following fracture of the femur. GONZA. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 19: 1091.

Congress of the leg with fracture of the femur. J. VALLS. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 19: 1137.

Congress of the leg; fracture of the femur. GONZA. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 19: 1154.

A new mechanical aid in the closed reduction of fractures of the leg. H. WINTER. Chirurg. 1935, 7: 703.

Cortical avulsion fracture of the lateral tibial condyle. H. ALLEN. J. Bone & Joint Surg. 1935, 18: 30.

Avulsion fractures of the os calcis. J. T. RUSSELL. Rev. de ciruj. de Barcelona, 1935, 5: 180.

Avulsion of the anterior articular facet of the os calcis. Contribution to the mechanism of calcaneal fractures. H. von BRÄUNER. Deutsche Ztschr. f. Chir. 1935, 243: 559.

Os calcis fractures and the results of reduction. BRUNZEL-DIE LA CAMER. Zentralbl. f. Chir. 1935, p. 558.

Late results of fractures of the os calcis. F. D'ALLANES and J. HUGUET. Mém. l'Acad. de chir. 1935, 61: 1399.

Late results in thirty two cases of fractures of the os calcis. AUYRAY. Bull. et mém. Soc. nat. de chir., 1935, 61: 1315.

Malaligned fractures affecting the ankle joint; with special reference to twenty two cases which were treated by arthrodesis. A. G. KIRKBRIST. Surg. Gynec. & Obst., 1935, 62: 79.

Orthopedics in General

Some orthopedic findings in sixty-eight cases of hemophilia. H. R. THOMAS. J. Bone & Joint Surg. 1935, 18: 120.

Congenital ankylosis, a case report. F. KIRCHER. Chirurg. 1935, 7: 37.

Orthopedics in war surgery. A. BLANCHET. Med. Welt, 1935, p. 1570.

An outline of the history of orthopedic surgery. A. T. MOORE. J. Bone & Joint Surg. 1935, 18: 12.

The use of hemostatic fluids in orthopedic surgery. R. MAMMART. Bull. et mém. Soc. d. chirurgiens de Par. 1935, 67: 567.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Unusual contra-indication to occlusive treatment of varicose veins. A. L. PARKER. Lancet, 1935, 130: 81.

The injection treatment of varicose veins. C. S. ROOF. J. Med. Cincinnati, 1935, 4: 483.

A case of phleboma. J. P. DAVIES and A. ROCHARD. Bull. Soc. d'obst. et de gynéc. de Par. 1935, 24: 603.

Tumor of the carotid body. P. L. MINNERT. Presse méd. Par. 1935, No. 25: 1804.

Arteriography. P. GONZALEZ. Zentralbl. f. Chir. 1935, p. 5407.

Cerebral artery of the branchial artery syndrome due to peripheral hypovascularization and changes in the sensibility arteriography. M. M. BERA and A. S. LEBRON. Bol. y trab. Soc. de ciruj. de Buenos Aires, 1935, 9: 103.

A contribution to the causticity of the closed anastomosis of the face and scalp, with special reference to their surgical treatment, as illustrated in the report of a post traumatic case which involved the parietal, temporal, and frontal regions. R. MATA. Rev. med. y ciruj. de la Uchile, 1935, 40: 860.

The Mace operation as the treatment of skin, femoral, and popliteal aneurysms. J. H. GIBSON. Ann. Surg. 1935, 92: 147.

Acute arterial obstruction from aneurysm. H. M. CLUTE. New England J. Med., 1935, 214: 137.

Thrombosis and embolism of the pulmonary artery and the arteries of the extremities. P. VALDONI. Referees med. 1935, 5: 1551.

The treatment of embolism of the large vessels of the lower extremity by lumbar sympathectomy. J. BERGHA. Can. Med. Assn., 1935, p. 149.

Excised procedure for ligation of the superior gluteal artery. F. LACROIX and R. F. VET. J. de chir. 1935, 46: 916.

Endarterial injection of the extremities. V. LUCARELLI. Policlin. Roma, 1935, 47: sec. part. 1935.

When and where may one amputate in gangrene of the lower extremities of arterial origin? G. MANNING. Presse méd. Par. 1935, 43: 807.

The experimental bases of arteriectomy. R. FORTINCE and R. SCHAFER. J. de chir. 1935, 46: 830.

Indications, results, and techniques of arteriectomy in obstructive arterial disease as seen in eighty cases recently operated upon. R. LAMARCA and R. FORTINCE. Presse méd. Par. 1935, 43: 1953.

Thrombosis. E. ROEWITZ. Referees med. 1935, 5: 631.

Buerger's disease. M. V. ROSE and G. C. HILDALOO. Medicine, 1935, 6: 41.

Buerger's disease, angios pactorum. D. STAFFORD and L. G. BARRETT. Rev. med. d. Roma, 1935, 35: 137.

The treatment of Buerger's disease by peripheral sympathectomy. Case of particular interest. E. KLOVALLA. Rev. med. de Barcelon., 1935, 40: 403.

Anastomosis following the ligation of large vessels. W. KURBOWSKY. Ztschr. f. Anat. 1935, 91: 68.

Blood; Transfusion

Thrombocytopenic purpura, a clinical study. F. THOMAS and R. B. WOOD. Australia & New Zealand J. Surg. 1935, 5: 433.

Substances involved in the coagulation of the blood of the newborn infant. IV. Variations in the fibrinogen content in the perinatal infant. M. M. LEVINE and H. N. BARNES. Am. J. Dis. Child. 1935, 5: 99.

The technique of Hemonex—arterial puncture for modular biopsy. J. P. PICCOLI. Rev. med. d. Roma, 1935, 35: 13.

Blood transfusion in private practice. G. H. MACDONALD. Brit. M. J. 1935, 71.

Blood transfusion in children. J. M. JONES and A. CHERRY. Seminars med. 1935, 41: 77.

Results of blood transfusion in sepsis. R. STANT. Zentralbl. f. Chir., 1935, p. 29.

Metals of blood transfusion in septicemia. F. STERN. Illinois M. J. 1935, 64: 66.

Lymph Glands and Lymphatic Vessels

Attempts at radiological visualization of the lymphatics from the frontal nerve to the maxillary. L. CRIVATI, A. CAROVITTO, and A. NINOTTA. Radiol. med. 1935, 22: 1093.

- Pre-anesthesia narcosis with paraldehyde J HEDGECOCK *Ann. Surg.* 1936 103 46
- Cyclopropane S ROSENTHAL *Proc. Roy. Soc. Med. Lond.* 1936, 29 157
- The clinical use of cyclopropane and tribromo ethanol in anesthetic hydrate P M WOOD *J. Am. M. Ass.* 1936, 106 778
- Averts An analysis of 1,600 administrations. *Sta. F. SMITHWAY Canad. M. Ass. J.* 1935, 34 2
- Ractidone anesthesia with carbon dioxide as a stimulant K FROST *Forster d. Therap.* 1935, 11 631
- A comparative study on the toxicity of novethen II J von BRAUN *Schmerz.* 1935, 8 24
- Sodium-erypan anesthesia J DIX Y MAS and A FELTZGOLD *Med. Iber.* 1935, 39 669
- A death following eriphan-sodium anesthesia J Non-ventory *Zentralbl. f. Chir.* 1935, p. 4112
- Sodium-erypan as a general anesthetic in surgery J A. R. CAMACHO *Praxis med. Par.* 1935, 43 8058
- Ether anesthesia HERNANDEZ *Rev. y trab. Soc. de ciruj. de Buenos Aires.* 1935, 30 76

- The use of spinal anesthesia R. MANDERLICH *Zentralbl. f. Gynæk.* 1935, p. 560.
- Pentocain as spinal anesthetic D. C. BELL and C. B. EMMETT *Ann. Surg.* 1935, 103 29
- Epidural anesthesia in spinal anesthesia M. KERNSTETTER and A. BARNHART *Ann. J. Surg.* 1936, 111 54
- Percain in spinal anesthesia in abdominal and gynecological surgery VILLAR and COSTA *Rev. Soc. de ciruj. y ginec. de Buenos Aires.* 1935, 34 721
- Six hundred and seventy-five spinal anesthetics with tropacocaine S. FERNANDEZ *Svensk Läkarsäll.* 1935, p. 1537
- Prophylaxis and treatment of hypotension due to spinal anesthesia H. ZAPALLA *Polische. Revue.* 1935, 43 202 part 1490
- Peridural segmental anesthesia by the method of Paget and Dogliotti, results in 204 cases J. P. FLORES and L. O. C. SORIANO *Rev. de ciruj. de Barcelona.* 1935, 5 336
- On soluble anesthetics in rectal surgery C. M. MOSKOW *Brit. M. J.* 1935, 2 935 [C4]

PHYSICO-CHEMICAL METHODS IN SURGERY

Röntgenology

- Whether radiology? C. G. TRALL *Brit. J. Radiol.* 1936, 9 9
- Radiology as a specialty J. F. BRADFORD *Brit. J. Radiol.* 1936, 9 17
- Radiology—past and present C. L. McDONALD *Irish J. M. Sc.* 1936, 101 7
- The recognition of radiology as one of the specialties in medicine C. P. HARRIS *Texas State J. M.* 1935, 31 300
- The X-ray microscope G. BRILLANT *Brit. J. Radiol.* 1936, 9 30
- Röntgenological and histological findings during the course of five years as a dog following the intravenous injection of thorotrast NAKIELI *Zentralbl. f. Chir.* 1935, p. 2479
- Experimental studies on the effect of thorotrast on pathological lymph nodes E. DOTTI *Chir. chir.* 1935, 2 939
- Considerations on the roentgen exploration of the pharyngolaryngeal region. F. ANCI, M. ANCI, and J. C. CARANO *Medicine, Madrid.* 1935, 6 441
- The radiological study of the uterus T. O. RANTHEE *Med. rev. chir.* 1936, 4 21
- Röntgenological manifestations of diseases which have dysentery as a pronounced symptom II M. WINKEL *Minnesota Med.* 1936, 19 21
- Radiation therapy J. F. EDWARDS *Radiology* 1936, 30 86
- The present mode in deep X-ray therapy (Contard) F. W. O'BRYEN *Radiology* 1936, 30 1
- A multiple X-ray therapy case for anal and small intestine J. R. CARY and E. M. CLAIRBORNE *Radiology* 1936, 30 104
- A portable secondary standard for roentgen ray measurements R. THORNTON *Acta radiol.* 1935, 16 755
- The dependence of the back scattering of roentgen rays in a substance on focal distance, quality of radiation, and field size H. M. PARKER *Acta radiol.* 1935, 16 705
- A study of cones or other collimating devices used in roentgen therapy E. H. QUINCY and L. D. MARSHALL *Radiology* 1936 30 10
- A study of back scattered radiation and depth damage, using a transplantable mammary tumor as an indicator K. SORIANO *Radiology* 1936, 30 76

- Röntgen therapy in the treatment of non-specific respiratory diseases A. J. WILLIAMS and L. BEVAN *Radiology* 1936, 30 45
- The roentgen ray treatment of tuberculosis of the mediastinal lymph nodes U. V. PORTMAN *Cleveland Clin. Quarterly* 1936, 1 63
- The action of the X-ray as an aid in the treatment of gonorrhea J. F. KELLY *Radiology* 1936, 30 41
- The toxic factor in X-ray therapy of malignancy A. BACHEN and P. J. MILLER *Med. rev. chir.* 1935, 15 1
- A technique for roentgen irradiation of inoperable cancer of the skin H. H. ARNOLD *Am. J. Roentgenol.* 1936, 35 93
- The blood picture in X-ray and radium workers I. I. KAPLAN and S. ROSENFIELD *Radiology* 1936, 30 47
- Studies on the effect of roentgen rays upon the intestinal epithelium and upon the periculo-endothelial cells of the liver and spleen S. A. CHODAK *Acta radiol.* 1935, 16 461
- The influence of roentgen rays and radium on epiphyseal growth of the long bones J. D. BRADSHAW and H. B. HUNT *Radiology* 1936, 30 10
- The effect of large doses of X rays on the growth of young bone E. M. ROTH and W. E. WILKINS *J. Bone & Joint Surg.* 1936 18 64

Radium

- The depth dose in radium trietherapy C. W. WILSON *Brit. J. Radiol.* 1936, 9 38
- The radium treatment of postoperative peritonitis H. H. BEYER and E. E. FORTNA *Radiology* 1936, 30 37
- Some effects of the gamma rays of radium on the developing chick embryo C. W. WILSON *Acta radiol.* 1935, 16 714

Maculotherapy

- First in surgical and orthopedic conditions A. B. GILL *J. Am. M. Ass.* 1936, 106 40
- The present status of physical therapy in the practice of medicine R. KOVACS *Virginia M. Month.* 1936, 6 578
- Physiotherapy in the treatment of injuries in general and orthopedic practice E. B. M. VAN DER *Brit. M. J.* 1936, 1 53

the lymphatic glands, especially on their new growth. V The action of the toxins of malignant tumors on the lymphatic glands, with special reference to the function of the reticulo-endothelial system. VI The action of the toxins of malignant tumors on the cardiac and vascular systems. VII. Extracts of malignant tumors and organs of non-malignant disease. S OHSANO *Jap J Obst & Gynec* 1935, 8: 444.

An histological study of human and animal malignant tumors. I Demonstration of the toxin of sarcomatous cells by means of rat sarcoma. II Mechanism of the action of the toxin of sarcoma cells. III. Properties of the cellular toxin of sarcoma. IV Demonstration of the cellular toxin of sarcoma by the use of rabbit sarcoma. V Demonstration of the toxin of cancer cells. VI. Property of the cellular toxin of tumor (II). VII. Property of the cellular toxin of tumor (II). I. MARITA. *Jap J Obst. & Gynec* 1935, 18: 459.

The present status of the cancer problem. A. CROTT *Ohio State M. J* 1935, 31: 85.

Cancer as a problem in metabolism. H. H. BRAD *Arch Int Med* 1935, 86: 1143. [C79]

Cancer survey of Michigan. F. L. RANTON. *J Michigan State M Soc* 1935, 35: 37.

Achievements in cancer control. E. I. CARR. *J Michigan State M Soc* 1935, 35: 7.

Simple experimental cancer research. M. C. MARSH *Am J Cancer* 1935, 26: 81.

Attempts at vaccination against experimental cancer. A. BIELECKA. *Progr cell Par* 1935, 43: 1777.

The effect of an ascites-producing diet on the growth of carcinoma, sarcoma, and melanoma in animals. K. SUGIURA and S. R. BRIDCHART. *Am J Cancer* 1935, 26: 115.

The effect of estrone administration on the mammary glands of male mice of two strains differing greatly in their susceptibility to spontaneous mammary carcinomas. G. M. BOHNER. *J Path & Bacteriol* 1935, 41: 169.

Idiopathic multiple hemorrhagic sarcoma (Kaposi). G. M. MACKIE and A. C. CHODOLANO. *Am J Cancer* 1935, 26: 1.

General Bacterial, Protozoan, and Parasitic Infections

Septicemia of pharyngeal origin. F. D'ONOFIO. *Rev di chir* 1935, 1: 665.

Streptococcal septicemia treated with whole blood injections. J. A. HENRY and G. J. OHSHTROM. *Lancet*, 1935, 130: 143.

A discussion of septic therapy. K. BRIDGEMAN. *Portsch d Therap* 1935, 11: 93, 205. [C79]

Ductless Glands

Endocrine disorders. R. L. SCHAFER. *Endocrinology* 1935, 26: 64.

Metabolic crampopathy. S. MOORE. *Am J Roentgenol* 1935, 25: 30.

Pituitary and oxytocin fractions of posterior pituitary extract. K. J. MELVILLE. *J Am M. Ass* 1935, 106: 101.

The calorigenic action of extracts of the anterior lobe of the pituitary in man. W. O. THOMPSON, S. G. TAYLOR, III, P. K. THOMPSON, S. B. NADLER, and L. F. M. DEXTER. *Endocrinology* 1935, 26: 53.

The action of anterior pituitary hormones on the basal metabolism of normal and hypophysectomized pigeons and on paradoxical influence of temperature. O. ROBERT, O. C. SMITH, R. W. BATES, C. S. MORAN, and E. L. LAM. *Endocrinology* 1935, 26.

An investigation of the hormone content of saliva. A. I. WEISSMAN and C. C. YERGENY. *Endocrinology* 1935, 26: 91.

The histology of the sex organs of ovariectomized rats treated with male or female sex hormones alone or with both simultaneously. V. KOSCHICKOVY and M. DENCIOV. *J Path & Bacteriol* 1935, 41: 91. [C79]

Surgical Pathology and Diagnosis

The coagulating properties of viper venoms. LAMBERT-LAVASSIERE, HOFF, and KONTOROS. *Bull et mem Soc. med d hop de Par* 1935, 51: 589.

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INTERNATIONAL ABSTRACT OF SURGERY

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COLLECTIVE REVIEW

THE PERIPHERAL NERVES

O W JONES, JR, M D, SAN FRANCISCO, CALIFORNIA

- I Polyneuritis
- II Experimental work
- III Injuries to the peripheral nerves
 - A Injuries to the brachial plexus
- IV Neuralgia of the peripheral nerves
- V Isolated and multiple tumors of the peripheral nerves

A REVIEW of the literature on the peripheral nervous system for the years 1933 and 1934 reveals many difficult and as yet unsolved problems. No general statement could cover the work in this field as the literature deals with a variety of disorders. It is necessary, therefore, to divide this discussion into several parts.

POLYNEURITIS

Under this heading are included various types of polyneuritis, i.e., toxic, infectious, and that arising from dietary insufficiency.

Viets (13) gives an excellent historical review of the growth of knowledge of peripheral neuritis through a period of more than one hundred years. Robert J. Greaves, an English physician, was the first to point out that the disease "may be resident in the nervous cords themselves or their extremities, which I shall call their circumferential parts." It remained for Louis Duménil to locate and verify the disease by pathological examination.

Wechsler (14) discusses the frequency of avitaminosis in the various types of polyneuritis and its importance as an etiological factor, and reports a series of 9 cases of polyneuritis. He concludes: "First, many cases of polyneuritis of ob-

scure origin are probably neither toxic nor infectious in nature, but more likely are deficiency syndromes (avitaminoses). Secondly, in many cases of polyneuritis heretofore regarded as resulting from a specific cause one finds an additional—possibly a determining—factor in avitaminosis. Thirdly, in nearly all cases of polyneuritis, a degenerative rather than an inflammatory process is present and these pathological changes are similar to those seen in avitaminosis, a fact which furnishes valuable pathological evidence in this regard. Fourthly, while in beriberi and pellagra the antineuritic vitamins B₁ and B₂ or G are involved, in some obscure cases and in some others in which the avitaminosis seems to play the decisive rôle it may be that other vitamins are concerned. There is some experimental evidence to prove that absence of Vitamin A and possibly also of Vitamins C and D can lead to degenerative changes in the spinal cord, root, and nerves, and that their presence will prevent degeneration by poisons which sometimes affect the nervous system.

Minot, Strauss, and Cobb (10) present a study of 57 cases of alcoholic polyneuritis and discuss the relationship of dietary deficiency, especially the lack of Vitamin B₁, in the production of this disease. There is great similarity between the symptoms and pathological changes of the multiple neuritis of beriberi (caused by lack of Vitamin B₁) and those of alcoholic polyneuritis, such similarities make the observer wonder whether these two conditions may not have a common etiological basis comparable to the common basis

of endemic pellagra and 'alcoholic' pellagra. Fifty-seven patients with undoubted alcoholic polyneuritis, who had gastric analyses performed or adequate dietary histories taken (usually both) were observed. In addition, the records of 73 patients with no data on gastric secretions or dietary habits were studied. Results of the gastric analyses showed that only 7 of 43 patients had a normal amount of hydrochloric acid in the gastric juice and 21 secreted no hydrochloric acid. In 43 cases studied by gastric analysis, 50 per cent of the patients had achlorhydria and 33 per cent had hypochlorhydria. The various phases of alcoholic polyneuritis are discussed, especially with reference to the relationship of this disorder to, or its causation by, dietary deficiencies. The symptoms are compared with those of beriberi. The pathological changes in alcoholic neuritis, both acute and chronic, are discussed. Similarity is noted between the pathological changes in various groups of alcoholic neuritis and those found in pellagra, beriberi, and pernicious anemia. The literature on the pathological changes of alcoholism shows that this field has not been studied satisfactorily but when these changes are viewed from the new standpoint of deficiency disease, order seems to arise out of chaos. The diet employed in the treatment of their patients is described in detail, and the authors conclude that probably lack of Vitamin B₁ plays an important rôle in the production of 'alcoholic' polyneuritis. The deficiency can be attributed not only to an inadequate intake but also to the state of the gastro-intestinal tract and the presence of factors that inhibit the effectiveness of nutritional elements.

Christopher Pashind, and Snorf (3) call attention to 2 cases in which, after prolonged post-operative vomiting, multiple neuritis developed. They felt that avitaminosis was responsible for the neuritis.

A symposium on interstitial neuritis, dealing primarily with the etiology and treatment of acute and chronic sciatic and brachial neuritis, is given by Harris, Ray, Martin, Burt, and Denny-Brown (9). The term interstitial neuritis is defined as describing an acute or a chronic inflammation of the supporting connective tissue banding together the separate nerve fibers into bundles called nerves. Etiologically the following factors are presented as causes of neuritis: (1) the chronic toxicities of alcoholism or diabetes; (2) chronic dental sepsis; (3) distant or neighboring suppuration or neighboring inflammation; (4) arthritis of the cervical intervertebral disks or inflammation in fibrous tissue around the nerve roots; (5)

bursitis, arthritis, or fibrositis of neighboring structures; (6) prolonged exposure to cold; and (7) cervical ribs. The treatment is divided into that of the acute and that of the chronic stage, and the methods of treatment into medicinal, physical, general and local. The conclusion is drawn that the pathological findings do not explain all of the various signs and symptoms.

Goodwin (6) reports a fatal case of lead poisoning with polyneuritis and extensive and almost total anesthesia in a colored girl three and a half years of age. Complete laboratory and autopsy findings are presented. Microscopic examination of all tissues was negative except for very marked myelin degeneration noted in the peripheral nerves, especially those of the legs. Spectrographic tests of the bones and the liver showed the spectral lines characteristic of lead. X-ray examination of the bones of the forearm demonstrated greatly increased density at the points of growth in both the radius and the ulna. Blood cells showed punctate basophilic stippling. Clinically the patient had extensive paralysis and almost total anesthesia. Attention is called to the fact that grave sensory changes may occur in lead poisoning in children.

Other cases of lead, infectious, syphilitic, and alcoholic neuritis are reported by Harris (8), Brain (2), Uppahart (12) and Hanson, Balita, and Besombrie (7).

Polyneuritis with atelectasis is reported by Fontan and Ubertino (5). They mention that, in the past, other observers have described such a condition and have advanced various theories. They feel that none of the theories presented satisfies the facts. They believe that an infectious or toxic agent, which is the cause of the peripheral neuritis, affects also the central nervous system, that is, the spinal cord, medulla, and brain. In certain instances the basal ganglia are affected sufficiently to cause an atelectasis such as is seen in encephalitis lethargica. The authors point out that the experimental work of Lofora and of Minkowski shows that atreticous varies in intensity and location and may be caused by many lesions of different types and locations. They recommend the clearing up of all foci of infection and the use of nitrophen and salicylates. A case, with autopsy findings, is reported but the study of the brain was inadequate. The spinal cord—the upper lumbar level—showed areas of disintegration and small round-cell infiltration.

Partial paralysis of the brachial plexus following the use of antiscorpiion serum is reported by Pacheco e Silva (11) who calls attention to the fact that such a condition has been known to

follow the use of antitetanic and other serums. Such complications do not contra-indicate the use of serums.

Allinson, Henstell, and Himwich (1) report their findings on the influence of glycine on creatinuria in a case of peripheral neuritis. Daily analyses were made of the urinary excretion of creatinin, creatin, nitrogen, and sulphur. In contrast to other cases of secondary muscular atrophy, but like those in which progressive muscular dystrophy and myasthenia gravis are present, the ingestion of glycine markedly increased the creatinuria. Absence of response to edestin or glutamic acid was also noted. As the patient's condition improved, the creatinuria decreased and the reaction of glycine correspondingly diminished.

EXPERIMENTAL WORK

During 1933 and 1934, some interesting experimental work on peripheral nerves was done. Heinbecker, Bishop, and O'Leary (18) carried out a series of experiments on human beings and dogs by which they endeavored to detect, by physiological means, the fibers in peripheral nerves which conduct the impulses that give rise to painful sensations. They endeavored to answer the following question: Are the fibers which mediate painful impulses assignable to specific groups in a mixed nerve, or do fibers from various groups contribute to painful sensations? They concluded that there is a group of myelinated fibers in the peripheral nerves of man and the dog which conduct impulses resulting in painful sensations. These fibers give rise to a recognizable potential component with a conduction rate of from 30 to 15 meters to the second. Their short chronaxia and absolutely refractory period measurements identify them as belonging to the small, more thinly myelinated fibers of the somatic type. Tactile sensations are conveyed by the largest and most irritable myelinated fibers in the sensory nerve trunks. Direct stimulation of exposed peripheral human nerves results in only two sensations—touch and pain. Differences in the quality of sensation experienced on direct stimulation of exposed nerves and those resulting from stimulation of sensory skin endings are discussed. The findings lend considerable support to the theory of specificity of nerve pathways. Nerve fibers seem to occur in groups, not only according to size and conduction rate, but also according to their terminal connections.

In 1932, Zotterman (23), studying the peripheral nervous mechanism of pain, verified the findings of Adrian (1931) that acetic acid applied to the frog's skin produced small action potentials

with a velocity of $18\frac{1}{2}$ m p s and other noxious stimuli caused smaller potentials with a velocity of $5\frac{1}{2}$ m p s. He found also that heat gave the same effect—that is, small action potentials of slow rates. These findings, however, were not obtained in mammals, and he concluded that, if present, they must be too small for present methods of recording. A further series of pressure-cuff experiments on the human arm was conducted to investigate the sensation of tingling which the author associated with prick sensation. As a result of these studies and those of other workers, Zotterman feels "that tingling corresponds to an activity of what Thumberg calls 'prick nerves'", that is, to a low frequency of impulse in superficially ending fibers which he correlates with "the slowly conducting fibers discovered by Adrian in mammalian nerves possessing end-organs with a slightly higher threshold for mechanical stimuli than the larger touch fibers." He concluded "that nociceptive reactions are induced from the skin by the activity of special nerve fibers of slower conduction rates than the touch and pressure fibers. Conduction rates corresponding to Erlanger's and Gasser's C-class fibers, thus strengthening the evidence produced by Foerster that sympathetic afferent fibers are concerned in pain reactions." It is well known that, in the surgical treatment of injuries to peripheral nerves, the method of choice is end-to-end suture.

In endeavoring to explain the unsatisfactory results following the application of nerve grafts, Davis and Cleveland (16) performed a series of experiments on dogs. Sections of the sciatic nerve 3 and 7 cm in length respectively were removed and immediately sutured. At varying periods of time, the nerve was re-exposed and sections were taken for microscopic examination from both the proximal and distal lines of sutures. From the microscopic study of the sections removed from the distal suture line, the following conclusions were drawn:

- 1 In nerve transplants the scar formed at the line of suture between the distal end of a transplant and the end of the distal segment of the peripheral nerve may act as an impenetrable barrier to the downgrowing neuraxons.

- 2 Resection of this distal scar and resuture may allow continuation of the growth of the neuraxons into the distal segment of the nerve.

- 3 Neuraxons may grow through a nerve transplant 3 cm in length to reach the distal line of suture at the end of from sixty to seventy days.

Doghotti (17), reasoning from the known fact that, following nerve suture, there is an augmenta-

tion of the nerve fibers at the regenerating end, proposes section and suture of partially paralyzed nerves. He argues that, when this is done, improvement in the neuromuscular function will result. His conclusions are based on both experimental and clinical work. In 4 dogs, Dogliotti sectioned one sciatic nerve and divided the proximal end into two parts, one part representing two-thirds of the entire nerve and the other portion one third. The larger portion of the proximal part was carried through muscles and fascia and sutured subcutaneously. The small part was sutured to the distal end of the divided sciatic nerve. In the 4 dogs so treated, motor recovery was complete in from six to seven months. Two dogs were sacrificed at the end of seven and seventeen months respectively. In order to produce complete sensory degeneration in the areas supplied by the sciatic nerve in the 2 remaining dogs, the spinal ganglia on the side operated upon were completely removed twelve and fifteen months respectively after the first operation. Five and six months, respectively after the removal of the spinal ganglia the dogs were sacrificed. Both had developed trophic ulcers of the feet. Microscopic counts of nerve fibers were made from sections removed proximally from those removed at the point of suture, and from those distal to it. The results showed that distal to the point of suture the fibers had increased in number 10-fold. Likewise the growth in the distal portion was homogeneous and diffuse.

This experimental evidence was applied in the case of a child ten years of age who at the age of two years, had had anterior poliomyelitis, resulting in complete paralysis of the right leg and subtotal paralysis of the left. In the left lower extremity the child was able to move the third, fourth, and fifth toes, and had slight flexion of the foot with possibly some contraction of the triceps. It was an unfavorable case and there was nothing to lose. In March 1930 the left sciatic nerve in the upper one third of the thigh was divided and immediately sutured. In fifteen months, flexion of the toes returned, in two years, definite contraction and power in all of the toes and the posterior muscles of the leg and thigh. After four years there was good action in the triceps, the knee flexors of the toes, and the leg on the thigh. In this case the return of sensation was in the form of hyperesthesia in the area supplied by the sciatic nerve. The sense of position was normal. Dogliotti drew the following conclusions:

1. The surviving motor fibers fully preserve their normal regenerating capacity

2. The return of function is more extensive and more satisfactory after the operation.

3. Failure of re-innervation of the anterior tibial group was caused by the fibrosis of the muscles which had taken place over a period of five or six years. The degree of muscle fibrosis, however did not prevent the increased return of function in the posterior tibial muscles.

Dogliotti believes that too exact an approximation of the nerve was the chief cause of the failure of return in the anterior tibial group and that he should have anastomosed the central end of the posterior tibial nerve which contained the active motor fibers to the entire distal portion of the sciatic nerve thereby obtaining a more diffuse and balanced regeneration. He feels that the method is applicable to similar cases, but that it would be better to choose a case of infantile paralysis in which the paralysis has not existed for more than two or three years, the degree of paresis is less, and the musculature has been preserved by massage, passive movements, and electrical stimulation. Lastly he would approximate only the active central fibers of the proximal portion to the entire distal portion of the nerve at the point of suture.

Purpura (20) calls attention to his experimental work which bears out the foregoing results of Dogliotti. He is of the opinion that, in the presence of a partially paralyzed nerve, more satisfactory results can be obtained if the nerve is divided, rotated, and reanastomosed.

Saito (21, 22) presents a method for roentgenological visualization of peripheral nerves by means of the endoneural or intraneural injection of thorium chloride solution (thorotrust) or an emulsion of lipiodol. The method is recommended as a diagnostic aid in injuries of the peripheral nerves.

Loehr (19) has shown in animals and man that, following the intraventricular injection of thorium diiodide, the substance is eliminated by the perineural lymphatics. If after a given period of time, a roentgenogram is made, the cranial and lumbar nerves can be demonstrated.

INJURIES TO THE PERIPHERAL NERVES

It is apparent that, in civil life, the majority of injuries to the peripheral nerves occur in the upper extremities.

Attention is repeatedly called to the so-called delayed paralysis of the ulnar nerve (traumatic ulnar neuritis) a condition which is associated with early fracture at the elbow and the subsequent formation of cubitus valgus. The majority of the writers feel that the condition is relatively

frequent, although it is generally considered rare because a history of fracture cannot always be elicited. The latent period between fracture and the manifestation of involvement of the nerve may vary from one to fifty-one years. In some cases the symptoms are so mild that the patients do not associate the lesion in the nerve with the previous trauma, in others, the limitation of extension and flexion of the forearm with some pain in the joint and the bony deformity are the outstanding complaints. The onset of nerve signs usually occurs during a period of major activity. Such signs develop gradually and may be intermittent. Sensory signs usually precede the motor signs and are associated at times with painful paresthesias which are accentuated with flexion of the forearm. The sensory symptoms may disappear while the patient is at rest. Many persons are forced to change their occupations to reduce the constant irritation of the nerve at the elbow. Atrophy of the muscles supplied by the ulnar nerve occurs gradually. The condition may progress to complete ulnar paralysis if it is not treated. The origin of the paralysis is attributed to the changes which take place as a result of repeated trauma to the nerve at the elbow during active use of the arm.

Bonola (30) reports 6 cases of delayed ulnar paralysis and discusses at length the etiology and pathogenesis of cubitus valgus resulting from supracondylar fracture of the humerus in the first ten years of life.

Collin (32) mentions such uncommon etiological agents as arthritis, traction of a scar, bursitis, the presence of a sesamoid bone in the internal lateral ligament, purulent inflammation of the elbow joint, and proliferating lesions following scarlet fever or chronic articular rheumatism.

Black (28), in discussing traumatic ulnar neuritis, states that it is a definite clinical entity and entirely separate and distinct from progressive muscular atrophy for which it is occasionally mistaken.

All the authors are of the opinion that neurolysis with anterior transplantation of the nerve is the procedure of choice but, in certain instances, neurorrhaphy and transplantation are necessary.

Injury to peripheral nerves following other types of trauma to bones is reported. Gurdjian and Goetz (39) report 15 cases of palsy of the radial nerve associated with fractures and dislocations of the humerus. Their figures and those of others show that, in such fractures, the radial nerve is involved in from 4 to 9 per cent of the cases. They recommend early and repeated neurological examinations and the avoidance of undue

delay in the repair of an injured nerve. In fractures of the middle third of the humerus, undue manipulation of fragments should be avoided.

In instance of protracted nerve pain one must consider the possibility of a foreign body in or adjacent to a nerve. Banzet (25) reports 5 cases in which extremely small foreign bodies (metallic or glass) penetrated or remained in a peripheral nerve. He advocates marking of the skin at the site of the maximum tenderness when X-ray examinations are made. Regional local anesthesia, rather than direct nerve block, is recommended in order that the point of maximum tenderness may be determined while the nerve is exposed.

Paralysis resulting from the application of a tourniquet to the arm has been reported by Brown and by Robb (31, 45). In 3 instances there was complete motor paralysis of the median, radial, and ulnar nerves, but sensory changes were not marked. All 3 patients recovered, 2 after operation, 1 without it. The authors advise against the use of tourniquets on the upper extremity.

Articles by Brown (31), Dyas and Davison (36) and Learmonth (41) emphasize many interesting points regarding injuries to peripheral nerves. Dyas and Davison call attention to the fact that, following trauma, peripheral nerves frequently are incorporated in scar tissue with resulting paralysis. This type of paralysis simulates closely that caused by the division of a nerve. Brown mentions various causes of paralysis of the peripheral nerves, among them pressure from a cast, contusion of the nerve without laceration, improper splinting or bandaging, fracture of the bone near a nerve, pressure from a tourniquet, manipulation of bony fractures, and diathermy burns. Learmonth discusses various conditions in which compression of one or more peripheral nerves causes injury. He mentions cervical ribs, neuralgia paresthetica, delayed paralysis of the ulnar nerve, compression of the nerve by traumatic bony alteration, and an abnormal anatomical position of a nerve.

Stevens (48) reports 3 cases of palsy of the median nerve produced by attempted intravenous injection of calcium chloride into the median basilic vein. Five other cases are reported in the literature, and it is noted that the condition resulted only from the use of calcium chloride, never having been seen after the intravenous use of other drugs. In such cases no type of therapy has been satisfactory.

Berntsen (27) gives a general review of peripheral nerve surgery, the methods commonly employed, the relative value of each method and

the pre-operative and post-operative care, stressing the importance of relaxation of the paralyzed muscles and a long-continued postoperative régime of physical therapy and electrical stimulation. Infection, fibrosis of the muscles, and contractures or ankylosis of various joints contra-indicate suture of the nerve. Contracture deformities should be corrected before suture of the nerve. Nerves should not be sutured under tension. If the gap between the segments is too great, lengthening can be obtained by flexing the parts and freeing the nerve over some distance. If this cannot be accomplished, the nerve segments should be fastened as close together as possible with the extremity sutured. After one month, gradual extension is accomplished. In the second stage, the ends are freshened and an end-to-end suture is performed. Grafts of catgut, tubes of fascia lata, and decalcified bone are not satisfactory.

Foerster (37) reports his experiences with injuries to the peripheral nerves in the World War. During this period he studied 4,748 cases and of this number he was able to follow 2,915 long enough to judge the results. Of the patients followed, 45 per cent recovered spontaneously, 22 per cent had spontaneous improvement, and 33 per cent required operation. In addition to the direct trauma caused by the bullet, one should determine the additional trauma which results from the action of the force which is transmitted along the nerve for a given distance both proximally and distally from the point of severance. Changes which take place both proximally and distally along the nerve lead to irreparable alterations involving the entire cross-section of the nerve. Continuation of the nerve may result in temporary abolishment of function which is usually of short duration and generally disappears. Foerster compares this to the paralysis of a peripheral nerve caused by pressure such as is seen in civil life. He calls attention to the reaction which takes place in the perineurium and endoneurium following a gunshot wound in the neighborhood of a peripheral nerve. The reaction leads to the formation of fibrous tissue, not only at the site of injury but also extending both proximally and distally in the nerve itself. Foerster emphasizes the fact that such fibrous proliferation forms an obstacle to regeneration of the nerve fibers from the central segments. In such instances a very careful neurolysis should be performed, particular pains being taken to free the individual nerve bundles. It is important, in neurolysis, to obtain normal nerve tissue—that is nerve tissue free from fibrous tissue—before the suture

is attempted. Suture should never be done while the nerve is under tension. For cases of gunshot wounds in which there is a large defect in a nerve, autogenous grafts with the use of special sensory nerves are recommended. Early neurolysis some time between four and six weeks after the injury is recommended, when there is no evidence of regeneration. Of 370 patients for whom suture of the nerve was performed, 55 per cent had complete return of function, 42 per cent showed improvement, and 3 per cent showed no change. In the cases in which transplantation and suture were performed, 26 per cent were cured, 66 per cent showed improvement, and 11 per cent received no benefit. In 21 instances the divided nerve was transplanted directly into the muscle with satisfactory results.

As many of the unsatisfactory results in surgery of the peripheral nerves can be attributed to undue delay between the injury and the repair of the nerve, the majority of the workers in this field are now advocating early exploration and repair of the involved nerve. It is argued that early operation will shorten the period of disability and markedly lessen the permanent changes that may result from muscular atrophy and stiffness of the joints.

Pollock (44) after studying 167 records of sensory regeneration in recovering nerves, concluded that there is no relation between the recovery of particular muscles and the return of sensation in any particular cutaneous nerve.

Duel (35) discusses the changes which have taken place in the surgical technique of repair of the facial nerve. The earlier methods for correcting facial paralysis by anastomoses of the facial nerve with the neighboring nerves in the neck are reviewed. Despite the fact that newer methods have been advanced, the older methods of anastomoses are still used. The treatment of facial paralysis resulting from various causes is discussed. For patients in whom the nerve has been injured during operation, immediate repair is advocated, whether or not infection is present. Of 50 patients treated by Duel, 33 required a nerve graft. Autoplastic grafts taken from the anterior femoral cutaneous nerve proved satisfactory except that there was a long latent period between the graft and evidence of returning muscular activity. This period has been shortened by the use of grafts from nerves in which Wallerian degeneration has been allowed to take place *in situ* for from two to three weeks. Heteroplastic grafts also have been employed with success. In such instances, the blood type of donor and recipient has been the same. The advisability of

performing neurolysis of the facial nerve in the bony canal in cases of Bell's palsy is discussed. Ducloux feels that in instances in which the paralysis fails to improve over a period of several months, neurolysis of the nerve is justifiable.

Graham (38) reports a case of paralysis of the facial nerve in which, after exposure of the nerve in the temporal bone, its liberation from the canal, and the removal of granulation tissue, there was complete return of function at the end of eight months.

Injuries to the Brachial Plexus

Faldini (50) reports a case of traumatic paresis of the brachial plexus associated with partial obliteration of the subclavian artery on the same side. The patient, a woman thirty-four years of age, was seen first in July, 1932. Her past history was negative. In February, 1931, she sustained a severe stretching injury to the left brachial plexus. There was immediate, severe pain in the entire left upper extremity, which gradually became less intense. The pain radiated from the left side of the neck down to the finger tips, and there was a pronounced motor weakness, especially in the hand. Painful paresthesias aggravated by cold developed in the forearm and hand. The findings of the general physical examination were within normal limits except in the left upper extremity, which showed a generalized muscular atrophy, especially marked in the forearm and hand. The left hand was slightly cyanotic and colder than the right. All muscles of the extremity were acting but weak. Epicritic sensibility was within the normal limits with the exception of a zone of painful hypesthesia along the ulnar surface of the forearm extending down to, and including, the little finger. The reflexes were normal, there were no pupillary changes. The electrical responses were within normal limits. The left brachial plexus, above the clavicle, was tender to palpation. No pulsations could be made out in the left subclavian, brachial, radial, and ulnar arteries. Roentgenograms of the cervico-thoracic spine were negative for congenital anomalies and fracture. The pre-operative diagnosis was a partial lesion of the lower cords of the brachial plexus and obliteration of the subclavian artery (endarteritis) on a traumatic basis. At operation, the lower cords of the brachial plexus were found bound down in a mass of fibrous connective tissue. No gross alterations in the involved roots could be found. Neurolysis was performed. In the region where the subclavian artery is usually located, a cord-like structure, about the size of an ordinary lead pencil was

found surrounded by a hyperemic mass of firm fibrous tissue. No pulsations could be made out. The cord-like structure was freed from the scar tissue and a periarterial sympathectomy was performed. Immediately, feeble pulsations could be made out in the vessel. After operation, the extremity was warmer and had a normal color. Feeble pulsation could be made out in the brachial and radial arteries. Improvement was gradual and, at the end of four months the pulsations in the vessels of the extremity were of good volume although not equal to those in the opposite member. The muscular atrophy was disappearing and motor function had improved markedly. Pain was only transient and had almost disappeared. Faldini concluded that he had proved lesions of both the nerves and the artery, that the case demonstrated that a stretching trauma can cause obliteration of a large arterial trunk with incomplete paralysis of the brachial plexus, that a partial lesion of the nerve with a superimposed arterial lesion may produce the picture of complete paralysis of the nerve, and that neurolysis and freeing of the artery, even after a long period between the injury and operation, offer favorable results.

Rocher and LeBourgo (53) report a case of traumatic paralysis of the brachial plexus improved by neurolysis of the cords of the plexus. They recommend neurolysis as soon as the acute process has subsided, and feel that the results are usually satisfactory although recovery is slow.

Rupture of the entire brachial plexus by blunt force is reported by Schaefer (54). At the time of operation he found complete severance of the cords of the plexus just distal to the cervical spine. The cords appeared as though sectioned by a scalpel. Suture of the nerve roots, which was done without difficulty, was followed, in due time, by almost complete sensory recovery and a very satisfactory motor return.

Injury to the nerves following the use of brachial plexus anesthesia is reported by Pacher (52). Out of 149 cases in which brachial plexus anesthesia was employed, Pacher reports 3 cases in which paralysis resulted. In one instance the radial nerve was involved, but recovery took place in six months, in another, the ulnar nerve was involved, and a third case, neuritis of the entire brachial plexus with muscular atrophy of the extremity resulted. Pacher ascribes such complications largely to faulty technique.

Partial temporary paralysis of the left brachial and lumbar plexuses following an electrical shock (660 volts) is reported by Klessens (51). Subsequent to recovery the patient became mentally

depressed and developed a functional paralysis of both left upper and lower extremities. This was an insurance case.

NEURALGIA OF THE PERIPHERAL NERVES

Ryden (64) calls attention to the fact that in a great many cases of so-called brachial neuralgia and of radiating pains in the neck or shoulder spondylitis deformans may be found in the lower part of the cervical spine, usually confined to 2 adjacent vertebrae. In a study of all cases of so-called brachial neuralgia observed in the clinic of Lund it was found that, in many instances roentgenograms demonstrated a spondylitis deformans of 2 adjacent cervical vertebrae, usually the sixth and seventh. Ryden reports 5 typical cases followed for from one to five years, which were among those first treated by fixation of the head and neck with a plaster jacket. The patients were men—laborers. Their ages ranged from thirty-seven to sixty-two years. In all, the pains took the form chiefly of so-called brachial neuralgia. In 4 cases the left arm was involved, and in 1 case the right. In each instance the pains became severe on any movement of the cervical spine, and at times certain movements evoked lancinating pains severe enough to cause the patient to cry out. In no case was there any serious neurological change in the form of either lost sensibility or paralysis. In 2 cases the involved extremity showed slightly diminished sensation to pain and touch. Also in 2 there was a mild degree of muscular atrophy of the arm. In all of the cases roentgen examination demonstrated typical changes characteristic of spondylitis deformans localized to the lower part of the cervical spine, and usually confined to adjacent vertebrae. The patients were treated according to one principle, namely fixation of the cervical spine by means of a plaster jacket. Later Ryden employed a bandage constructed only of hydropile cotton. This is applied in such a fashion as to immobilize the head and neck. In instances in which the immobilization is necessarily prolonged, a light reinforced celluloid jacket is used. The course of treatment varied according to the individual case. In some cases, fixation was necessary for a few weeks; in others, it was carried out off and on over many months. After the period of fixation, diathermy or some similar mild treatment was employed.

Veyrnat (66) describes 2 cases of neuritis of the brachial plexus associated with dental infection in which the neuritis disappeared after the foci of infection were removed. He points out that frequently in such conditions, it is possible

to palpate a chain of lymph glands under the border of the trapezius muscle and running along the course of the spinal Accessory nerve. It is this chain of glands that drains the dental and brachial areas and becomes involved in the infectious process. Veyrnat feels that neuralgia in the shoulder and arm, as well as spastic torticollis, may be secondary to such a process. Lymphadenopathy of the anterior cervical, submental, and jugular chains rarely causes such trouble.

Francon, Marlow and Gerbay (65) emphasize that syphilitic neuralgia of the cervical and brachial plexuses is not uncommon. They cite a case of neuralgia which they assume was of this type. The only positive evidence in favor of syphilis as the etiological agent was the fact that the patient's father was known to have syphilis. All blood tests on the patient were negative. The pain involved the left side of the neck, shoulder and entire extremity and came on in paroxysms, usually in the early hours of the morning. Antitoxic therapy resulted in some improvement. The authors conclude that this therapeutic test was sufficient to establish the etiology of this case.

Hauser (63) recognizes 2 types of sciatica: first, a sciatic neuritis or a true inflammation of the nerve, and second, a reflex sciatic neuralgia or essential sciatica. His article contains a long discussion on the etiology of sciatic neuritis. This condition is divided into a primary and a secondary type; the latter being that caused by pressure on the nerve trunk either within the pelvis or within the spinal canal. Unlike sciatic neuritis, the neurological manifestations in sciatic neuralgia are normal. A study of 60 cases of sciatic neuralgia led to the following conclusions:

1. This condition is not a true neuritis, but an essential reflex sciatic neuralgia.
2. The referred pain is not confined to the sciatic nerve.
3. The origin of the pains may be attributed to muscular insufficiency or physical strain.
4. Any environmental condition which irritates the nervous system acts as a contributing factor.

Three cases are reported as typical examples of the entire group of 60 cases reviewed. As treatment, Hauser recommends the application of Buck's extension for a short time, followed by graduated exercises continued over a considerable period and the wearing of a corset for a relatively short time.

Allenburger (57) discusses the pathogenesis, symptoms, and therapeutic possibilities of post-amputation pain. He feels that the symptoms are

produced by the regeneration and degeneration of the peripheral nerves in the stump. This process varies in different patients and may be aggravated by general factors such as suppuration or the excessive use of alcohol, or by local factors such as callus or the formation of perineural scar. The latter may lead to vasoconstriction and irritation of the afferent nerve fibers. As a prophylactic measure it is recommended that the nerve be divided as high as possible and injected with absolute alcohol. From the therapeutic standpoint Altschuler feels that chordotomy is the method of choice. In insurance cases the results are uniformly poor.

Brauer (55) is of the opinion that the most satisfactory results in phantom limb pain are obtained by excision of the corresponding sympathetic chain, combined with the special procedure of 'denervation' of the neuroma.

Stahl (65) discusses a method of treating neuralgia by the intraneural injection of a large amount of a 10 per cent solution of glucose. Attention is called to the fact that, in dealing with painful regrowth of the peripheral nerves, surprising results are sometimes obtained following intraneural and perineural injections of novocain.

Allegretti (56) reports his method of treating peripheral pain by epineural and perineural injections of saline or novocain solution. He treated 62 patients by this means. Thirty-four had sacrocoxalgia, 16, chronic infectious arthritis of the knee, and 12 sciatica. Before this form of treatment is carried out all other conditions which might be responsible for the pain such, for example, as diabetes, syphilis, pernicious anemia, and tumors of the cauda equina, must be ruled out.

ISOLATED AND MULTIPLE TUMORS OF THE PERIPHERAL NERVES

Sarrote (77) reports 4 cases of isolated tumor of the peripheral nerves and gives a historical review of the various theories of the pathogenesis of such tumors and their classification into peripheral gliomas, neuromas, neurofibromas and perineural fibrosarcomas. In the 4 cases reported, a diagnosis of peripheral glioma was made. Two methods of treatment are recommended: (a) enucleation, when possible, and (b) resection of the portion of the nerve containing the tumor when less important nerves are involved.

Mangolaffra and Copland (75) speak of the occurrence of an isolated nerve tumor in 2 members of the same family, and point out that cases of familial fibrosarcoma of peripheral nerves are extremely rare.

Bergstrand (67) noted the occurrence of a schwannoma on a peripheral nerve, which metastasized to the lung.

Lenche (73) published the case record of a young man who had multiple schwannomas on one median nerve. The extremity was amputated at the shoulder.

Gavioli (66) reports 2 cases of polycystic glioma (*neurinoma*) of peripheral nerves. In each instance the tumor was removed without disturbing the function of the involved nerve.

Groth (71) reports a congenital partly malignant tumor of the sciatic nerve associated with elephantiasis. At autopsy, the right lower extremity was found markedly swollen. The entire right sciatic nerve from within the spinal canal to its peripheral endings had been changed into a tumor-like mass. In the spinal canal were 3 small tumor nodules. The intrapelvic portion of the right sciatic nerve was so enlarged that it caused anterior displacement of the right iliac vein and artery. The tumor was a myxolipofibroma arising from the connective tissue elements of the nerve. Pallasading was not found. The nerve fibers ran unchanged through the tumor. In the region of the right lateral sural nerve there was a transition of the tumor cells into the round cell type of sarcoma. The tumor had invaded the femur along the nutrient artery. Only 66 cases of congenital sarcoma (of all types) have been reported. Groth's case was one of the very few cases of congenital sarcoma arising from the nervous tissue. Four similar cases, not congenital, were found in the literature.

Di Natale (68) reports the case of a woman thirty-four years of age who had many small tumors beneath the skin of the left side of the vulva and perineum. The neoplasms developed rapidly, were extremely painful to pressure, and were subject to paroxysms of spontaneous stinging pain of long or short duration. At operation, 9 small tumors were found in the posterior perineobulbar nerve. Histologically they were *neurinomas*.

Several articles dealing with von Recklinghausen's disease appeared during the period reviewed. The majority dealt with case reports (70, 72, 74, 76, 78).

BIBLIOGRAPHY

POLYURITIS

1. ALLEN, M. J. C., HIRST, H. H., and HEMWICH, H. L. The influence of glycin on creatinuria in peripheral neuritis. *Am. J. M. Sc.*, 1934, 188: 560-565.
2. BRAIN, W. R. Symmetrical paralysis of the shoulder-girdle muscles and the extensors of the wrists and

- finger due to lead. *Proc Roy Soc Med Lond*, 1934, 27, 602.
3. CHIFFOLEAU, F. PARET, H. A. and SLOAN, L. D. Multiple neuritis following biliary tract operations. *Am J Surg* 1933, 5, 260-263.
 4. FERNANDEZ, J. G. CARRIL, M. A. and CAMARA, J. M. Sobre un caso de polineuritis tibia. *Seman med* 1933, 5, 453-456.
 5. FORTAN, A. and URRUTIO, J. Polineuritis avec atrophie J de pied de Bordeaux, 1933, 11, 10-103.
 6. GORDON, T. C. Lead poisoning, report of a case in child with extensive peripheral neuritis. *Bull Johns Hopkins Hosp Bull*, 1934, 35, 147-150.
 7. HANDE, J. L. BALIVA, P. L. and BAZOWSKO, G. Polineuritis subitica. *Semana med* 1933, 1405-1409.
 8. HARRIS, W. A chemical cause of lead palsy. *Brit M J* 1935, 1, 193-194.
 9. HARRIS, W. RAY, M. B. MARTIN, J. P. BURT, B. and DIXON-BROWN, D. Discussion on the causation and treatment of interstitial neuritis. *Proc Roy Soc Med, Lond* 1933, 26, 350.
 10. MEYER, D. R. STRAUSS, M. B. and COMA, S. Alcoholic polyneuritis dietary deficiency as factor in its production. *New England J Med* 1933, 308, 1244-1249.
 11. PACHECO R SILVA, A. C. Parálisis haste descende da pleura brachial consecutiva à la sclerose anti escurpionica. *Rev Sud Am de med et de chir* 1933, 4, 489-493.
 12. URRUTIO, D. A. Multiple peripheral neuritis as a complication of measles. *Brit M J* 1934, 1, 5-110.
 13. VIERA, H. R. The history of peripheral neuritis as a clinical entity. *Arch Neurol & Psychiat* 1934, 31, 377-394.
 14. WICKSTEAD, J. S. The etiology of polyneuritis. *Ibid* 1933, 30, 3-437.
 15. YOUNG, E. L. Is Merper softer as differential diagnosis in surgical conditions of the abdomen and kidneys. *Am J Surg* 1933, 23, 237-238.
- EXPERIMENTAL WORK**
1. DAVIS, L. and CLIFFORD, D. A. Experimental studies in nerve transplants. *Ann Surg* 1934, 99, 277-281.
 2. DOOLITTLE, A. M. Etudes expérimentales et première application clinique d'une nouvelle opération destinée à augmenter et à équilibrer la fonction neuro-musculaire dans le paralysie partielle des nerfs. *J de chir* 1935, 45, 30-48.
 3. HERNIMICHA, P. BIRNIE, G. H. and O'LEARY, J. L. Pain and touch fibres in peripheral nerves. *Arch Neurol & Psychiat*, 1933, 30, 77-780.
 4. LANGE, Ueber die Reizbehandlung des zentralen und peripheren Nervensystems des Menschen an Roesigk'schen Zentralbl. *J Chir* 1934, p. 204.
 5. PIERCE, F. R. Essai expérimental sur la mise pendant de neurotisation d'un nerf. *paralysie partielles*. *Arch d'orthop* 1934, 30, 120-205.
 6. SARTO, M. Neural shadow of the peripheral nerves and their pathological changes in injury and tumor. *Neurophysiological studies by means of thoracic duct solution (thorotank)*. *Am J Surg* 1934, 26, 300.
 7. SARTO, M. KANOHARA, K. and KATO, S. The technique of neurophysiological visualization of the peripheral nerves by sclerography in man. *Ibid* 1933, 23, 78-83.
 8. ZOTTERMAN, V. Studies in the peripheral nervous mechanism of pain. *Acta Acad Scand* 1933, 10, 135-147.
- INJURIES TO THE PERIPHERAL NERVES**
1. BALLANCE, C. ARNOLD, E. P. BEATTIE, J. and LLOYD, G. Discussion on the results of suturing divided nerves, with special reference to the treatment of laryngeal paralysis in horses. *Proc Roy Soc Med Lond* 1934, 27, 1207-120.
 2. BAETZ, P. Quilques cas de corps étrangers des nerfs. *Presse med* Paris 1934, 43, 1099-1040.
 3. BARRILLAN, N. Blessure du nerf médian à la partie inférieure de l'avant bras suite de paralysie. Résection suture bout à bout. Bon résultat. Mail et main. *Soc med de chir* 1933, 59, 1477.
 4. BERTHELM, A. Le traitement chirurgical des lésions nerveuses périphériques. *Review général Acta orthop Scand* 1934, 5, 43-46.
 5. BLACK, S. O. Treatment of ulnar neuritis. *South M J* 1935, 28, 53-54.
 6. BLACK, R. Paralysis cubitala specia via traumatische. *Arch d'orthop* 1933, 29, 359-360.
 7. BOVACA, A. Paralis tardiva dell' ulnare da colpo vulgo post-traumatico. *Chir d'ogni di movi-mento*, 1933, 7, 267-268.
 8. BROWN, H. A. Crushed injuries of peripheral nerves—the value of early surgical treatment. *Californ J West Med* 1934, 4, 166-173.
 9. COLLIER, Spectroscopie des nerfs. On Götting des Nervens. Nach Elbogenverletzungen. Nach Artroskopie. Deformation mit besonderer Berücksichtigung der Unfallbegutachtung. *Arch f' orthop Unfallchir* 1934, 33, 51-590.
 10. COWLEY, S. M. Paralysis cubitala tarda. Con referencia a su relación con la neuritis cubital traumática y del trasplante anterior del nervio cubital. *Medicina México*, 1934, 13, 0-230.
 11. DOBOSY, R. Z. Neurosis del mediano y cubital y sus relaciones de la lesional por traumatismo y guiso del antebrazo. *Revista de la Soc y Trab Soc de Ciruj de Buenos Aires*, 1934, 18, 301-300.
 12. DAVIS, A. B. Advanced methods in the surgical treatment of facial paralysis. *Ann Otol Rhinol & Laryngol* 1934, 43, 76-83.
 13. DYER, F. G. and DAVISON, R. Traumatic peripheral nerve injuries. *J Am M Ass* 1933, 100, 194.
 14. FORRESTER, O. Die operative Behandlung der Schenkelverletzungen der peripheren Nerven. *Monatsschr Wundschmerz*, 1934, 6, 151-187.
 15. GRAYSON, H. B. Facial nerve damage, its repair. *Californ J West Med* 1934, 40, 174-177.
 16. GUTPHRY, E. B. and GORTZ, A. G. Radial paralysis complicating fracture and dislocation in the upper limb. *Ann Surg*, 1934, 99, 457-466.
 17. HARTZ, F. F. Chirurgie der peripheren Nerven. *Zentralbl f' Chir*, 1933, 60, 546-555.
 18. LEAROVITZ, J. R. The principle of decompression in the treatment of certain diseases of the peripheral nerves. *Surg Clin North Am* 1933, 13, 607-615.
 19. MILLER, O. J. Traumatic ulnar neuritis. *South M J* 1933, 26, 401-403.
 20. NEWBURN, B. B. and NEWBURN, F. D. Peripheral nerve lesions, their treatment and prognosis. *West J Surg Obst & Gynec* 1934, 4, 648-654.
 21. POLLOCK, L. J. The relation of recovery of different sensory branches of peripheral nerves to motor recovery. *Surg Gynec & Obst* 1934, 59, 847-864.

ABSTRACTS OF CURRENT LITERATURE

SURGERY OF THE HEAD AND NECK

EYE

Offord, S. R.: The Practical Use of Bacteriology by the Ophthalmologist. *Ochs State M J* 1936, 32 118

The ophthalmologist should be aware of the fact that bacteriological examinations of secretion from the conjunctival sac are unsatisfactory. To be of value, such examinations must be made of material taken from epithelial scrapings as it is in the epithelial cells, not the secretion, that bacteria are to be found. In the scrapings, the pathogenic or gonococci are discovered in the epithelial cells which stain normally and the acrophyses are found between the cells or in cells which are not normal.

Vinton Wascor, M D

Barker, O. Boyce, S. P., and Mahler, S.: On the Surgery of Glaucoma: Mode of Action of Cycloablation. *Am J Ophth* 1936, 19 1

By means of an improved method of slit-lamp microscopy of the angle of the anterior chamber in the living, the authors studied fourteen cases of glaucoma before and after operation with cycloablation. They conclude that the success of this operation depends upon the establishment of a cleft or permanent communication between the anterior chamber and the suprachoroidal space.

Tension was normalized in all cases in which the characteristic surgical dialysis was established. In those in which the iris had become so attached there was only a transitory or no reduction of tension. The tendency toward closure was found to be due to dialysis too small in extent, which favors adhesions of the contiguous surfaces, or to trauma during operation which creates raw surfaces and stimulates healing through contraction which varies with the individual.

Permanent dialysis is favored by (1) separation of the ciliary body with a spatula through a sufficiently large portion of the circumference (from 1/8-1/2 to one half) and (2) limitation of trauma to the minimum. The attainment of these objectives is favored by making a scleral incision farther posterior and even more diagonal than is customary thereby facilitating entrance of the spatula in the tangential plane and its rotation through a large arc. The attempt should be made to preserve the anterior chamber and prevent hemorrhage. Post-operative instillation of mydriatics should be avoided whenever possible, especially in cases of shallow anterior chamber. Mydriasis may favor closure of the dialysis by approximating the base of the iris to the site of its previous surface.

When the dialysis cleft is very great in extent, hypotony is apt to ensue with gradual cataract formation or the acceleration of an incipient cataract.

Lawrence L. McCoy M D

Travers, T. A.: Concurrent Strabismus. *Br J Ophth* 1936 20 Supp

For the successful treatment of concomitant strabismus, cooperation of the surgeon, patient, and parents is necessary. A true cure is obtained only when the treatment results in normal visual acuity in both eyes, normal stereoscopic binocular vision, and parallel visual axes. The 4 elements in the treatment are (1) optical treatment, (2) treatment of amblyopia, (3) orthoptic treatment, and (4) operative treatment.

No adequate explanation of the etiology of squint has yet been offered. The accommodation theory, based upon the relation between convergence and excessive accommodation, has as an objection the fact that the majority of hyperopes do not squint and the fact that the excessive convergence is usually greater than the excessive accommodation. However there is no question that refractive errors play a role. The muscular theory presupposes a periotic origin. While many features may be explained on this basis, definite paresis is usually not demonstrable. The fusion theory is based on failure of fusion of the images seen with the eyes whether by a fusion center or by a perceptual process. Unless the power of fusion is very strong in a case of strabismus it will not overcome a deviation of more than a few degrees. Therefore orthoptic training alone will not cure all cases of squint as a defect in the fusion faculty is certainly not the primary cause of squint. However unless fusion is finally obtained the strabismus cannot be called cured. A high percentage of squinters show a hereditary tendency, but no evidence of degeneration, stuttering or left handedness.

Abnormal retinal correspondence is found in from 50 to 60 per cent of cases of squint. This is correspondence of the macula of one eye with an extra-macular point in the other. Normal correspondence is a symmetrical correspondence of the 2 maculae. That one cause of abnormal retinal correspondence is the reaction of the brain to the abnormal position of the eyes is indicated by the change in correspondence after operation. Abnormal correspondence is most likely to occur when the squint begins very early in life and when the angle of squint is large. It is rare in squints of less than 20 degrees and very rare in those of less than 10 degrees. The degree of

SURGERY OF THE HEAD AND NECK

strabismic squint which is associated with abnormal retinal correspondence increases with the age of onset of the squint. Re-establishment of normal retinal correspondence after operation is more likely to occur if the patient has not squinted for a large period of his life and if the age of onset of the squint was relatively late.

The optical treatment of strabismus includes the correction of refractive errors with consequent relief of prism of convergence in cases of myopia and stimulation to convergence in cases of hyperopia and divergent strabismus. Astigmatism should be fully corrected to make possible a clear retinal image. In cases of divergence it may be desirable to under correct hyperopia. Less common optical methods include the use of bifocals and prisms. Prisms should probably be employed only in the cases of patients with a small angle of squint and some power of fusion. The author's experience with them has been unsatisfactory.

Amblyopia is the most serious complication of squint. Although there is a theory that amblyopia is of congenital origin, evidence of its transference from one eye to the other through prolonged occlusion of the fixing eye suggests the development of "amblyopia ex anopsia" through lack of use of an eye.

As a rule amblyopia does not affect children seven years of age or over. The earlier in life the squint develops the greater the degree of amblyopia is likely to be. Treatment should therefore be given early. Suppression is undoubtedly the forerunner of the amblyopia. A scotoma in the deviating eye (functional) may be demonstrated in cases of comitant squint, in the same visual line as the fixing macula. When the vision in the two eyes is equally good the scotoma may be demonstrated and disappears when the eye fixes. In some cases a second scotoma may be found over the squinting macula. The first scotoma may be from 2 to 30 degrees in diameter and often involves the macula. Suppressive method of treating amblyopia is most satisfactory. Total occlusion is best. The only effective method of treating amblyopia is occlusion of the better eye. Total occlusion is most satisfactory although in cases of deep amblyopia partial occlusion or atropinization may be desirable at first. The results are best if the occlusion is done before the seventh year, but sometimes improvement can be noted at a later age. The treatment should be continued until the vision of the fixing eye is equal to the vision of the squinting eye. It being borne in mind that the amblyopia may recur undetected the amblyopic eye should be given definite exercise such as is provided by drawing, reading, and sewing.

Patients with concomitant strabismus may be divided into 2 groups, those with abnormal retinal correspondence and those with normal correspondence. Those with normal correspondence may be further divided into those showing improvement

and those showing no improvement with fusion training. In the cases reviewed no treatment which did not include operation had any effect upon the patients with abnormal retinal correspondence. Of the patients who showed improvement with fusion training, from 85 to 90 per cent were discovered to have good powers of fusion after 5 lessons, this fact probably indicating that good fusion was present before the training was begun. Of the patients who failed to show improvement with fusion training, from 77 to 87 per cent had poor fusion after 5 lessons, this fact probably indicating that while fusion training can improve function already present, it usually cannot develop the function. In the group of patients who showed sufficient improvement from fusion training alone the treatment reduced the angle of the squint from 11 to 1 degrees in 22 lessons given over a period of two and six-tenths months.

Fusion training alone is unlikely to be enough if the angle of squint is over 20 degrees and seems to be most useful in the cases of a relatively small group of patients with squint of less than 20 degrees and good power of fusion. It may be tried in the case of any patient who has normal correspondence with poor fusion, but is unwise in the cases of patients with abnormal retinal correspondence. In fusion training the author used the synoptophore almost exclusively, first establishing normal correspondence with simultaneous macular perception, next obtaining fusion with the slides, and finally obtaining stereoscopic vision. Twenty-minute lessons were given 5 times a week.

Operative treatment should be given early, especially in cases with abnormal correspondence. The cosmetic results may be equally good in both types, but in cases with abnormal correspondence a full functional result is less likely at any age than in the others. Resection of the external rectus with recession of the internal rectus is done by the author in convergent squint. In some cases a second operation is necessary.

In a case with the refractive error corrected and the amblyopia cured operation is indicated if the child can give intelligent information and has an abnormal correspondence. If there is normal correspondence with poor fusion, orthoptic training may be tried, but there is little chance of success if the squint is over 20 degrees, immediate operation is advisable. If there is normal correspondence with some degree of fusion, orthoptic exercises should be tried. They should be tried especially in squints of less than 20 degrees although occasionally squints of as much as 30 degrees may be corrected by this method. If the child is too young for intelligent cooperation (under the age of three years), operation will probably be required if the squint is greater than 20 degrees. If the squint is under 20 degrees, operation may be delayed until further information can be obtained.

The results in 154 cases are summarized in tables
WILLIAM A. MANN, JR., M.D.

Smith, E. T.: Tendon Grafting in Paralytic Squint. *Australian & New Zealand J Surg* 1936, 3: 19.

Tendon transplantation for the correction of paralytic strabismus, as proposed by Himmelsheim in 1907 has been done successfully by a number of surgeons, especially in America. In cases of paralysis of the external rectus, ordinary methods of apylectomy result in no abduction of the paralyzed muscle and a permanent cure with the eyes in the primary position is sufficiently rare for operative interference to be generally avoided. In six cases of paralysis of the external rectus, the author used the tendon-transplant method with excellent results. Secondary contracture of the internal rectus was present in all but one and in all but one the condition was of congenital origin. After the operative procedure abduction varied from 15 to 45 degrees in the different cases and the eyes were straight in the primary position.

The operation consists of transplantation of the lateral third of the superior and inferior recti into the insertion of the tendons of the lateral rectus, together with tenotomy or recession of the internal rectus. Free tenotomy of the internal rectus is probably advisable if there is a strong secondary contracture of the muscle. The author found that splitting the tendons of the vertical muscles lessens the amount of abduction obtained. He believes the favorable results to be largely mechanical in action. In two of his cases the media instead of the lateral third of the superior and inferior rectus tendons was used. This seemed to produce a greater abduction power and necessitated careful handling of the internal rectus. The best results were obtained when the lateral third was transplanted.

WILLIAM A. MANN, JR., M.D.

Woods, A. C.: Sympathetic Ophthalmia. *Am J Ophth* 1936, 9: 100.

It has long been generally recognized that sympathetic ophthalmia rarely if ever occurs when the injury in the first eye has been complicated by a purulent infection or panophthalmitis. Clinical observation has taught that wounds of the cornea, even when complicated by anterior synechia, seldom, if ever lead to sympathetic disease, and that purulent infection of the injured eye tends to protect the second eye. A penetrating wound involving the root of the iris or the ciliary region in which there develops a persistent bedolent uveitis with occasional exacerbations is most to be feared as the cause of sympathetic ophthalmia. Especially to be feared are such eyes with a tendency toward phthisis bulbi and recurrent ciliary pain. Persistence or recurrence of low grade ciliary congestion, thickening and cellular infiltration of the iris, the gradual formation of occlusio pupillae, and capsular clouding of the lens make up the usual clinical picture. While these are most feared, there is nothing characteristic in the picture in the exciting eye, and sympathetic ophthalmia may occur following a penetrating wound that is healing without complications. The interval between the injury of

the exciting eye and the onset of sympathetic ophthalmia is extremely variable. The two extremes are fourteen days and forty-eight years.

The assumption is justified that three months after injury the chance of the development of sympathetic ophthalmia rapidly declines. Primarily two clinical manifestations of sympathetic ophthalmia are recognized, the anterior and the posterior form, depending on whether the anterior or posterior uvea is primarily attacked.

The pathological picture of sympathetic ophthalmia closely resembles that of ocular tuberculosis. In discussing the differential diagnosis the author emphasizes the following facts:

1. The infiltration about the emissary veins occurs characteristically early in sympathetic ophthalmia whereas in tuberculosis it is rare and occurs only in the late stages.

2. The general tendency in sympathetic ophthalmia is toward a general uniform infiltration of the whole uveal tract. In tuberculosis, the infiltration tends to be focal and nodular.

3. Sympathetic ophthalmia attacks the posterior layers of the iris, with the formation of a complete annular synechia. Tuberculosis tends to attack the anterior layers, and interferes little with the motility of the iris.

4. In sympathetic ophthalmia the characteristic infiltration spreads to the other ocular tissues only along the extension of the uveal tissue and, while it invades, it shows no tendency to destroy the surrounding tissues. Tuberculosis tends to destroy the surrounding tissues by caseation and necrosis.

5. In sympathetic ophthalmia, even in the early stages, there is phagocytosis of the pigment granules by the epithelioid and giant cells. In tuberculosis, pigment phagocytosis is rare and occurs in the late stages of caseation or necrosis.

The one recognized and proved preventive of sympathetic ophthalmia is early enucleation of the injured eye. This, however, cannot be regarded as an absolute preventive. There is danger of sympathetic ophthalmia for two weeks after enucleation of the exciting eye. It is generally believed that after the onset of sympathetic ophthalmia in the second eye enucleation of the exciting eye is of no avail.

The chief aim of local treatment is dilatation of the pupil to prevent pupillary occlusion. The instillation of atropine and the daily subconjunctival injection of a solution of atropine and cocaine and epinephrine bitartrate are the most valuable procedures. The local application of heat is not of great value. The most important single drug in the general treatment is sodium salicylate—a daily dose of 1 gram pound of body weight given in divided doses with sodium bicarbonate. The most valuable individual non-specific agent is undoubtedly diphtheria antitoxin.

The prognosis varies with the severity of the disease, the time that treatment is instituted, and the thoroughness of the treatment.

LESLIE L. MCCOY, M.D.

De Leo, F · Indirect Traumatic Lesions of the Optic Nerve and Optic Canal (Lesioni traumatiche indirette del nervo e del canale ottico) *Riv di chir*, 1935, 1 693

De Leo reports a case of indirect lesion of the left optic nerve resulting from a frontal trauma on the same side. The patient, a sixteen-year-old boy, was violently thrown off a bicycle, his forehead striking against a tree. On regaining consciousness he complained of total blindness of the left eye. An escape of cerebrospinal fluid from the nose persisted for twenty-five days and then ceased spontaneously. However, the usual signs of craniocerebral injury were absent. A diagnosis of skull fracture was made on the basis of the clinical evidence and the findings of direct roentgenography of the optic canals five months later. The original roentgenogram failed to disclose the lesion.

The author discusses the morphological characteristics, structure, and relations of the optic nerve in its various segments and reports the results obtained from an experimental study of skull fractures produced artificially in cadavers.

On the basis of the results obtained in these experiments and the data found in the literature, he draws the following conclusions:

- 1 Indirect lesions of the optic nerve result most commonly from anterior cranial, and particularly cranio-orbital, traumas, less commonly from orbito-facial traumas, rarely from temporal and parietal traumas, and exceptionally from occipital traumas and contrecoups at the level of the occipital foramen.

- 2 Indirect lesions of the optic nerve may result from obstetrical trauma.

- 3 The most common lesion is a fracture of the optic canal, either linear or comminuted, which is caused most often by extension of the original traumatic focus.

- 4 The extension of the fracture usually involves the optic canal of the same side, and rarely that of the opposite side. Bilateral lesions are exceptional.

- 5 As a rule the roof of the canalicular wall is involved, but never the floor.

- 6 The optic nerve injury is almost always due to a laceration of the nerve itself resulting from the osseous diastasis.

- 7 The craniofacial air space system is always involved in fractures which extend to the optical pathways.

- 8 Cases of fractures which extend to the base of the skull and the optic canals without involvement of the optic nerve itself and cases in which permanent nerve lesions are found in intact optic canals can be explained only by a sudden impact of the nerve against the superior and inferior borders of the endocranial canalicular orifice.

- 9 Traumatic hematomas of the peri-optical spaces are of very little importance in the causation of visual disturbances.

De Leo emphasizes the importance of early diagnosis of indirect traumatic lesions of the optic nerve and optic canal. He states that visual acuity should

be promptly investigated in all cases of head injury, and that in cases of suspected indirect lesions a direct roentgenogram of the optic canals should be made. Early diagnosis is essential for effective surgical treatment.

RICHARD E. SOMMA

EAR

Freedman, L. M. Puncture of the Internal Jugular Vein in Cases of Mastoiditis. *Arch Otolaryngol*, 1936, 23 29

Puncture of the internal jugular vein with manometric measurement of the venous pressure was carried out in a number of cases of mastoiditis with the idea it would be more accurate than the Tobey-Ayer test.

The vein is selected as it courses near the tip of the mastoid on its way to the jugular foramen. An 18-gauge needle 40 mm. long is plunged into it and an Ayer manometer connected as soon as blood shows.

The readings have been variable, ranging from 40 to 100 mm. and sometimes being less than 40. In twenty-five cases of mastoiditis the tests were entirely satisfactory. In cases in which no thrombus was present there was a quick rise and fall on compression of the jugular vein similar to the rise and fall occurring in the Tobey-Ayer test.

In a comparison of jugular pressure with spinal fluid pressure it was found that the pressure in the vein was much lower, but the rise on compression of the jugular was proportionately the same.

The advantages claimed for puncture of the internal jugular vein with manometric measurement of the venous pressure are that each lateral sinus may be tested individually, greater accuracy is assured because of closer proximity to the source of the infection, and puncture of one side and contralateral compression of neck of other side may be done to establish the patency of both sinuses through one puncture.

JOHN F. DELPE, M.D.

NOSE AND SINUSES

Decoux, P., Patoir, G., and Bédrine, H. Diffuse Osteomyelitis Invading the Bones of the Skull Following Suppurative Sinusitis or Otitis (L'ostéomyélite diffuse envahissante des os du crâne, consécutive aux suppurations sinusiennes ou otiques). *J de chir*, 1936, 47 232

The authors state that osteomyelitis of the bones of the skull is rare. All statistics indicate that osteomyelitis occurs most frequently in the long bones. The bones of the skull are involved in less than 1/2 of 1 per cent of all cases of the condition. Involvement of the bones of the skull is usually secondary to sinusitis or otitis. Frontal sinusitis appears to be its most frequent cause. The infection of the bones may occur without a surgical operation on the sinuses or mastoid, or may follow such an operation.

Osteomyelitis of the skull bones, like other forms of osteomyelitis, is due usually to streptococcal or staphylococcal infection. The authors state that in one of their cases the pus contained the diphtheria

bacillus and they have been unable to find the record of a similar case. Infection may take place by direct infection of the diploe or through the blood vessels. Histologically osteomyelitis in the skull bones is similar to osteomyelitis elsewhere.

The authors report two cases of osteomyelitis of the bones of the skull, both of which were fatal. In one case that of a patient thirty years of age, the osteomyelitis followed a frontal sinusitis of about one month's duration. The patient had never shown evidence of a chronic sinusitis. In the other case, that of a child ten years of age who had always been in good health, signs of sinusitis and of bone involvement followed a cold which had not been especially severe. The orbital region on the right side was involved first.

While in these two cases, there was no evidence of chronic sinusitis, such a chronic infection usually precedes osteomyelitis of the skull bones. The onset of bone involvement is indicated by pain and swelling in the involved region, headache and fever. Drainage of the pus and the removal of sequestra are followed by temporary improvement, but the symptoms recur and the process extends. The areas involved are revealed by roentgenograms.

The treatment usually consists in drainage of the infected areas. In some cases the use of maggots may be indicated, as in other forms of osteomyelitis. Vaccine or serum therapy or intravenous chemotherapy may be tried, but the authors believe that as a rule such general treatment is of little avail. In their opinion the best results are obtained in cases with early diagnosis followed immediately by operation with as large an exposure as possible and thorough drainage.

ALICE M. MORRIS

PHARYNX

Jackson, H., Jr., Parker, F., Jr., and Bruce, A. M.: Malignant Lymphoma of the Tonsil. *Am J M Sc.*, 1936, 191: 1

In the cases of malignant lymphoma of the tonsil which are reviewed by the authors the most prominent symptoms first noted by the patients were a persistent sore throat, swelling in the throat, and enlargement of the cervical lymph nodes. Fifty six per cent of the patients developed generalized lymphoma.

Authors state that the character and rapidity of the immediate response to irradiation are no index of the ultimate outcome.

The average duration of life from the onset of the condition to death in the reviewed cases was two and six tenths years; the median was one and four tenths years, and the extremes were three months and thirteen years.

One patient was alive five years; two were alive ten years; and one was alive and free from symptoms eighteen years after the onset of the condition.

The absence of involvement of the local lymph nodes at the time of treatment is, in general, of good prognostic import.

Lymphoma of the tonsil should be regarded as but one type of malignant lymphoma. The frequency of ultimate widespread involvement must be borne in mind.

It is suggested that the patients be treated as if they had carcinoma of the tonsil; that is, with very heavy initial irradiation and with comparable doses for recurrences.

JAMES C. BRASWELL, M.D.

NECK

Olper, L.: Experimental Studies of Ligneous Thyroiditis (*Ricercche sperimentali sulla tiroidite lignea*). *Arch Ital. di Clin.* 1935 41: 437

Enlargement of the thyroid of wooden hardness was first described in 1866 by Riedel. Riedel believed at first that it was a malignant tumor of the thyroid. He therefore attempted to perform a total thyroidectomy but because of tenacious adhesions was able to perform only a partial thyroidectomy. After the operation he found, to his great surprise, that the mass rapidly receded and the signs of compression disappeared. Histological examination did not show the picture of malignancy but only that of chronic inflammation. Many cases of this kind have been reported since and the condition has been given the name "Riedel's disease" or "ligneous thyroiditis."

The author describes experiments which he performed on dogs in an attempt to determine the nature of the process. The protocols of the experiments are supplemented with photomicrographs.

In the first experiments the thyroid was irradiated with large doses of roentgen rays. After this treatment late histological changes characterized by hypertrophy of the stroma and signs of degeneration of the parenchyma were found. In experiments in which staphylococci of attenuated virulence were injected into the parenchyma of the thyroid there were moderate changes characterized by cicatricial thickening at the point of inoculation and signs of degeneration of the parenchyma limited to the zone immediately around the site of inoculation. In a third series of experiments 95 degree ethyl alcohol was injected into the parenchyma. In the first stage after these injections, signs of degeneration of the parenchyma and a slight connective tissue reaction were noted, and in the succeeding period there was a marked diffuse hypertrophy of the stroma of the thyroid accompanied by all the characteristic parenchymatous and vascular changes observed in ligneous thyroiditis, such as desquamation of the epithelium, the formation of giant cells, chiefly epithelial, hyaline of the colloid, old iterating endarteritis and endophlebitis and infiltration with lymphocytes and plasmocytes.

Olper believes that the experimental production of these signs is of great importance as it shows that the lesions are not specific as has been claimed. The manner of their development and their progressive increase lead him to conclude that they are caused by an autotoxic action due to products of degeneration formed in the gland. ARTHUR OSCAR MORRIS, M.D.

SURGERY OF THE HEAD AND NECK

Parenti, G. C., and Poloni, P. The Histological Reactions of the Skeletal Musculature in Experimental Thyrotoxicoses (Le reazioni istologiche della muscolatura scheletrica nella tireotossicosi sperimentale) *Sperimentale*, 1935, 89 485

A number of experimentors have reported the effects of thyrotoxicosis on the heart muscle, but little attention has been paid to the effects of hyperthyroidism and dysthyroidism on the striated muscles of the body. The authors brought about hyperthyroidism in rabbits and then made a histological study of various groups of muscles—the diaphragm, eye muscles, intercostal muscles, abdominal muscles, and the muscle of the heart. They produced hyperthyroidism with homologous thyroid extract from rabbits, heterologous extract from calves and dogs, and commercial thyroid extract.

The immediate reaction of the muscles to the injection of the extract was a serous exudation with cloudy swelling of the fibers, loss of the transverse structure of the fibers, a homogeneous appearance of the muscles, and an increase of protoplasm indicating a moderate degree of degeneration of the contractile part of the muscle fibers. After from four to seven days this first exudative-degenerative phase was followed by a reactive-proliferative phase in which both the mobile histiocytic cells and the sarcolemma cells took part. The cells were markedly increased in number and showed karyolysis and karyorrhexis of their nuclei. However, this cell reaction was not characteristic of thyrotoxicosis but of the same nature as that seen in other forms of muscle atrophy.

The degenerative reaction was much more severe when heterologous extract was used than when the extract was homologous. Sometimes there was even a slight hemorrhage. The reaction to dog extract was even more severe than that to calf extract.

Some investigators have held that hyperthyroidism in itself does not cause degeneration of the heart muscle, but the author does not agree with them. He believes that the muscles are directly injured by the hyperthyroidism. In his experiments the most active muscles were more seriously damaged than the less active ones—the diaphragm, intercostal muscles, and eye muscles more than the muscles of the trunk and limbs. This is explained by the fact that the more active muscles are more highly charged with lactic acid than the less active muscles.

The author believes that the tremor in Basedow's disease is caused by injury of the muscles rather than of the nerves.

Patterson, N. Carcinoma of the Larynx. A Plea for More Conservative Surgical Procedures in Certain Cases. *Arch. Otolaryngol.*, 1936, 23 295

It must be admitted that most growths of the pyriform fossa and all but early tumors of the retrocricoid portion of the pharynx require laryngopharyngectomy for their complete eradication. It is questionable, however, whether such a procedure is justifiable. For a limited cancer of the middle, or situated in the usual site, at about the middle, or just anterior to the middle, of the cord, thyrofixure is the ideal procedure. The author prefers the term "thyrofixure" to the term "laryngofissure" as the latter indicates splitting of the cricoid cartilage as well as the thyroid. He states that while a growth developing from the false cord or ventricle is rarely encountered, such a tumor, if superficial, might be treated by the same method. When the cord is removed and operation discloses little tendency toward infiltration, it seems advisable not to remove the overlying cartilage as it acts as a barrier if recurrence takes place, causing delay in involvement of the soft tissues of the neck and rendering complete extirpation, if necessary later, easier to carry out. If the growth has crossed the middle line and has spread to the opposite cord of the subglottic region or if it invades the region of the anterior commissure, the author does not consider the case suitable for thyrotomy. So long, however, as growth falls short of the arytenoid region, laryngectomy is generally unnecessary. When the tumor has extended to, or is confined to, the subglottic region but still occupies a position anterior to the transverse axis of the larynx, partial or anterior laryngectomy rather than complete extirpation is often sufficient. The operation should be planned for adequate removal of the diseased area with a sufficient margin of healthy tissue rather than for the removal of a particular portion of the larynx. The various steps of the operation are described in detail.

The after-treatment does not differ in any respect from that employed after laryngofissure except that it is generally advisable to leave the tracheotomy tube in position until complete healing has occurred. In a limited number of cases a permanent tube must be worn, but it is noteworthy that, so long as the mucous membrane covering the arytenoids, interarytenoid space, and anterior aspect of the posterior ring of the cricoid cartilage remains, the space left after cicatrization has taken place is adequate for breathing and a fairly good voice may be retained.

JOSEPH K. NARAT, M. D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Aird, R. B.: Experimental Encephalography with Anesthetic Gases. *Arch Surg* 1936 32 193.

Because encephalography with air causes numerous symptoms and is very distressing to the patient, the author experimented on dogs with various anesthetic gases, including acetylene, cyclopropane, divinyl oxide, ether, ethyl chloride, ethylene, nitrous oxide, oxygen, and vinyl chloride. He arrived at the conclusion that nitrous oxide and ethylene are ideal agents for encephalography as they are safe, give good roentgenographic results, exert a sedative effect, cause minimal irritation, and produce no clinical or pathological ill effects.

In the cases of the dogs for which air, nitrous oxide and ethylene were used, pathological, cytological, and cerebrospinal fluid pressure studies were also carried out. No pathological manifestations were observed in any of the animals. The cerebrospinal fluid pressure findings were too inconsistent to permit conclusions. All 3 gases caused a distinct cytological response which varied directly with the extent to which the ventricles were filled. Cell counts up to and above 1,000 cells were frequent. The cell counts returned to normal within seven days when nitrous oxide and ethylene were used, and within ten days when air was employed. The differential cell counts showed predominance of polymorphonuclear cells in the first three days and predominance of mononuclear cells by the seventh day.

DAVID J. JONASZAK, M.D.

De Bernardis, M.: Reconstruction of the Dura Mater and Experimental Evulsion of Craniomeningeal Inguersal Wounds. (Plastiche della evulsione sperimentale delle ferite cranio meningeo-cerebrali). *Arch Ital d'Chir* 1935 4 55.

The dura mater provides reproductive and regenerative elements for the healing of craniocerebral wounds. Because of its activity there usually results a carpet tack contour with the band or base attached to the inner table of the skull and the point or apex deep within the cerebral structure. This scar is rigid and non-yielding, and causes irritation and distortion of the cerebral mass.

In experimenting with various substances the author found cellophane the most satisfactory. By placing a small sheet of cellophane between the brain and dura mater so as moderately to overlap the cerebral and dural breaches, he was able to cause independent healing of the skull and brain. The cerebral scar was free and unattached, soft, non-irritating, and did not cause cerebral distortion.

DAVID J. JONASZAK, M.D.

Harris, W.: Bilateral Trigeminal Tic. *Ann Surg* 1936 13 161.

The syndromes of trigeminal and glossopharyngeal tic are briefly reviewed. In the author's cases the incidence of bilateral trigeminal tic was 4.5 per cent. The occurrence of trigeminal tic in disseminated sclerosis is emphasized. Of forty-one cases of tic associated with chronic spastic paraplegia the tic was bilateral in seven. In most of these cases the onset of pain preceded the organic signs of cord disease. Harris believes that the pain may be due to a terminal neuritis of dental nerve filaments. He states that if, in addition, there are sclerotic plaques in the medulla adjacent to, or invading the spinal roots of the fifth nerves, bilateral trigeminal tic is much more likely to occur as in disseminated sclerosis.

The author has been impressed by the hereditary character of trigeminal tic. He reports a family in which nine members appeared to have suffered from trigeminal tic.

ROBERT ZIMMERMAN, M.D.

Hardy, M., and Crowe, S. J.: Early Asymptomatic Acoustic Tumor. A Report of Six Cases. *Arch Surg* 1936 32 392.

Since 1924 the authors have been collecting and making serial sections of temporal bones to correlate histological structure with clinical tests of hearing and vestibular function. They have collected and sectioned approximately 800 pairs of temporal bones. A detailed study of serial sections in 250 unselected cases disclosed that in 6 there was an acoustic tumor which did not give rise to clinical symptoms. The largest tumor was 5 mm., and the smallest about 0.25 mm. in diameter. The vestibular nerve was involved by 4 of the growths and the cochlear nerve by 3. Histologically 5 of the tumors resembled large neoplasms found on the acoustic nerve and in the cerebellopontine angle. The sixth tumor was different from any neoplasm the authors have seen in this locality.

The authors conclude that growths in the auditory canals do not produce irritative symptoms until they are large enough to cause compression of the contents of the canals. The article is illustrated.

D. VAN J. JONASZAK, M.D.

SYMPATHETIC NERVES

Brown, G. E.: Clinical Tests of the Function of the Autonomic Nervous System. *J Am Med Ass* 1936, 66 333.

Clinical tests to measure responses of the autonomic nervous system have two main purposes. The first, which is probably the more important, is to determine the sensitivity or reactivity of this nerv-

SURGERY OF THE NERVOUS SYSTEM

ous system in different functional disorders. According to the conception of vagotonia and sympathetonia, it being granted that an equilibrium or balance is maintained between the sympathetic and parasympathetic mechanisms, functional disorders do not occur when this hypothetical anatomical balance is maintained. Health represents an equilibrium or homeostasis of the organism, which is protected by an emergency mechanism adequate for its successful adjustment to changing environmental stress. The fitness of the individual to adapt himself to sudden changes in his environment, as evidenced by tests similar to those used for aviators in the War, may make "fitness" a quantitative expression.

Many functional disorders represent a departure from the normally balanced physiological state. The variation may be a diminished response or hyporeaction, or an excessive response, or hyperreaction. The condition known as "essential hypertension" is one which, by virtue of some abnormal reactivity of the vasomotor mechanism, represents an excessive response of the systemic blood pressure to stimulation. This seems to be a constitutional fault demonstrable in early life. It may be the fundamental abnormality which in later years eventuates in essential hypertension. In early life this is a functional state in which the emergency mechanism is too effective in its response to intrinsic and extrinsic stress.

Similar examples are Raynaud's disease and other forms of primary vasospastic neuroses. The response of the surface vessels of normal subjects to cold is a constriction of the arterioles and capillaries which produces faint grades of pallor, rubor or cyanosis of the skin. There is a slowing of the flow of blood in the capillaries. In Raynaud's disease the reaction to cold is exaggerated, but in other respects is the same as normal. The hyperreaction expresses itself locally, rather than systemically, as hypertension. This is an exaggeration of the normal reaction. In both Raynaud's disease and essential hypertension there is a constitutional vasomotor status with excessive responses to certain forms of stress.

Clinical testing consists in subjecting the patient to a standardized form of stimulation the response to which can be compared to that of "normal subjects." In vasospastic disorders the sharp responses in surface temperature to lowered temperatures, and the slower recovery with warm temperatures, and the sharp color changes distinguish abnormal from the normal reactions.

The simple method of testing the cardiac acceleratory response by exertion has long been used in these studies, and a functional disorder of the sympathetic mechanism, known as the "effort syndrome" or "neurocirculatory asthenia," has been recognized. A similar line of reasoning has been followed in testing the response of the peripheral vasomotor mechanism.

The second general purpose of clinical tests to measure responses of the autonomic nervous system is more specific than the first. The test is used to

predict the dilating effects of interruption of the sympathetic nerves by operative measures. One prognostic test based on the response of vasoconstriction to fever determines the available vasodilatation. Another form of investigation does not involve stress *per se* but reproduces temporarily what is accomplished by operations which involve the sympathetic nervous tracts. Anesthetization of the sympathetic ganglions and of peripheral nerves are examples. These procedures determine quantitative effects on the regional circulation by stimulating the vasomotor mechanism or by temporarily paralyzing the sympathetic pathways.

The importance of functional disorders is increasingly evident to the clinician. Their signs and symptoms are difficult to evaluate because of the absence of pathological changes and because of difficulties in measuring variation from normal reactions. This is true especially in visceral neurosis.

When a disease or disorder can be measured in terms of functional disturbance, progress is inevitable. Such measurement is urgently needed in the large field of functional states. One application of tests of emotional psychic effects on the autonomic nervous system is the detection of guilt with the so called "lie detector." The broad conception of Cannon has done much to simplify matters, and as the normal state is visualized, the abnormal state becomes increasingly clear. Dale recommended separation of the autonomic nervous system into the nerves that are stimulated by epinephrin, which he designated as "adrenergic nerves," and the nerves that are stimulated by choline, which he designated as "cholinergic nerves." This pharmacological classification seems to offer more to the clinician than a separation based on an anatomical division. The entire problem is still in the formative state. Facts are fragmentary, but are assuming a logical and useful pattern. Brown predicted that the next major development in clinical medicine will be in the direction of the autonomic system and its disorders.

Adson, A. W. Indications for Operations on the Sympathetic Nervous System. *J Am Med Ass*, 1936, 106: 360.

The indications for the surgical treatment of diseases resulting from dysfunction of the sympathetic nervous system are based on the symptoms and on the results obtained from interruption of the sympathetic pathways. The symptoms are due to abnormal vasomotor stimuli and motor imbalances in the smooth musculature of the colon, sigmoid, rectum, bladder, ureters, and uterus. Since afferent sensations of pain travel through fibers which may be of sympathetic origin and these fibers run parallel with the postganglionic fibers to blood vessels and visceral organs, pain also is considered a symptom resulting from dysfunction of the sympathetic nervous system.

The surgical treatment consists of sympathetic ganglionectomy and trunk resection with section of

ramal and postganglionic fibers to interrupt completely sympathetic pathways carrying efferent and afferent stimuli to a given area or organ.

The relief of symptoms obtained by one of the surgical procedures in the treatment of diseases produced by excessive vasomotor constriction results from the increase in the flow of blood to the extremity or organ involved. The motor imbalance resulting in excessive retention of urine in the bladder or ureters or in the accumulation of feces observed in congenital megacolon is corrected by decreasing the stimuli by interrupting a sufficient number of sympathetic fibers to balance the mechanism of retention with evacuation. Pain is relieved by the interruption of fibers carrying afferent sensations of pain by increasing the flow of blood to the extremity or organ, and by relieving smooth muscle spasm. Though some of the sensations of pain travel along fibers in the sympathetic trunks, most of the relief is due to the restitution of diseased tissue. This latter afferent impulse is carried directly over spinal nerves. Dysmenorrhea undoubtedly results from excessive vasomotor stimuli and muscular spasm. The relief obtained from resection of the premenstrual nerves is the result of the interruption of nerve fibers carrying sensations of pain, vasomotor stimuli, and motor stimuli to the uterine muscles.

In peripheral vascular diseases surgical treatment is instituted when medical treatment fails or the disease is slowly progressing. It is not employed, however, until the patient has been carefully analyzed to determine the status of the remaining blood vessels.

Raynaud's disease was not considered a vasomotor phenomenon until Raynaud called attention to the local asphyxia and cyanosis that preceded gangrene.

Vasospastic phenomena of the extremities vary in degree from coldness and numbness of the hands to trophic and gangrenous lesions. In order to clarify the indications for various types of sympathectomy the cases have been divided into the following four groups:

1. Those of so-called normal persons, predominantly women, who have cold, moist, clammy hands and feet and such associated disturbances as a mild degree of pallor in symmetrical single digits, the so-called dead finger or slight cyanosis.

2. Those representing gradations from these so-called normal states to those in which the disturbances in the color of the extremities are more profound. In this group the disturbances in color are frequently paroxysmal and occur even when the environmental temperature is not very low.

3. Those of persons who have further aggravation of the disturbance. The attacks of pallor become more intense and more painful, or a condition of chronic cyanosis or asphyxia supervenes, and temporary recovery is much more difficult to effect.

4. The more severe, but much rarer types of cases in which, without a prolonged antecedent history of vasomotor disturbance, gangrene may develop in the distal portions rather than in the tips

of the symmetrical digits. Pain may be a marked feature.

The chief problem is to select suitable cases for sympathectomy and to decide when operation is indicated.

The relief of vasomotor spasm results promptly in improvement in the circulation.

The acral type of scleroderma is the type that responds to sympathectomy. This is the scleroderma that results from the prolonged vasomotor spasm of Raynaud's disease.

Care should be exercised in selecting patients with scleroderma for sympathectomy for in advanced cases the hide binding process has strangled and destroyed the arterioles, capillaries, and venules beyond repair.

The relief of symptoms depends directly on the duration of the disease and its relation to the phenomena of vasomotor spasm. The patients who obtain the greatest relief are those who present the early stages of scleroderma of the acral type which follows a prolonged history of Raynaud's disease.

Sympathectomy is not indicated unless vascular studies demonstrate that there is ample circulation and the vessels are capable of being dilated by interruption of sympathetic pathways. Following operation in the early group the skin becomes pink, warm, and elastic, and the muscles again become firm and flexible, with resulting improvement in strength.

The operation is not indicated in the advanced stages of the disease when the skin becomes adherent to the knuckles, loses all of its subareolar tissue and is so tight and hard that it appears like leather drawn tightly over the bony digits.

A cold, wet, and clammy state of the skin over the hands and feet of asthenic patients suffering from chronic polyarthritides of the smaller joints suggested that a vasodilating operation would be as effective at least as the local application of heat and the administration of foreign proteins. Vasomotor disturbances are definite indications for surgical intervention when adequate medical measures have failed to check the disease. The operative treatment does not alter deformities, contractures, or the condition of ankylosed joints. It is of no value in the treatment of articular processes in the larger joints such as the knees, elbows, hips, and shoulders. It is most effective in the cases of younger individuals. In infective and senile arthritis it is contra-indicated.

Essential hyperhidrosis is a disease in which excessive perspiration of the hands or feet interferes with the normal social and economic status of an individual. Certain forms of sympathectomy are indicated to decrease the sweating function of localized areas when the individual complains of being socially ostracized and unable to carry on with his regular vocation.

Operations employed for the relief of this complaint are similar to those employed for the relief of the vasoconstriction of blood vessels of the extremities in Raynaud's disease since the post

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ganglionic rami to the individual somatic segments are so intimately associated that it is impossible to separate one group of fibers from the other.

The results following the operation are immediate and permanent.

Medical treatment of thrombo-angitis obliterans consists of rest in bed, the application of dry heat, the use of contrast baths, and the intravenous injection of protein. This is the treatment that should be employed in early and mild cases. In view of experience in the treatment of visospastic disorders such as Raynaud's disease by sympathetic ganglionectomy and trunk resection, selected patients with thrombo-angitis obliterans have been subjected to similar operations to improve the circulation of collateral vessels.

The results of sympathetic ganglionectomy in properly selected cases of thrombo-angitis obliterans are just as striking as those in cases of Raynaud's disease. The pain subsides, the swelling disappears, and the ulcers heal with remarkable rapidity.

Lenche and a few other investigators believed that improvement of the circulation by sympathectomy is of advantage in relieving the symptoms of osteoporosis. However, this opinion is not generally accepted, and the problem still remains to be investigated.

Robertson and others have shown by their investigations and operative results that extensive sympathectomy is of definite value in improving the circulation of the partially paralyzed extremity.

Patients who have spina bifida occulta with ulcers trophic changes occasionally develop indolent ulcers on the soles. This condition is associated also with a vasomotor disturbance characterized by a cold, wet, and clammy state of the skin of the extremities, and since local heat has stimulated granulation and healing, lumbar sympathectomy has been employed very effectively in improving the circulation and healing the ulcers. The procedure cannot be used indiscriminately, but is indicated in selected cases in which hyperhidrosis and vasomotor spasm are present.

Painful neuroma, a neuroma on the proximal end of a nerve caught in an amputation scar, occurs occasionally, but more often than not the situation of the pain is rather indefinite. Flothow has reported successful results following sympathetic ganglionectomy and trunk resection. Adson states that his experiences with sympathectomy have not been very gratifying, and he is therefore cautious in advising the operation.

Royle, in 1930, stimulated interest in the treatment of retinitis pigmentosa by stating that in this condition vision can be improved by sectioning vasoconstrictor nerves to the retinal vessels. Adson states that his personal experience has not been particularly convincing. However, he believes that the selection of cases for operation, it would be wise to institute surgical treatment in the earlier phases of the disease before the fields have become too narrow and visual acuity has been lost.

In angina pectoris, the indications for operations on the sympathetic nervous system are based on the fact that the disease occurring in a young person is the result of vasomotor spasm of the coronary arteries. This explains why vasodilating drugs or operations which divide nerve fibers that carry vasoconstrictor responses give relief. It is in this group of cases that unilateral or bilateral superior cervical sympathectomy has been so effective.

Sympathectomy is indicated for angina pectoris when the patients present vasomotor phenomena and when they otherwise would be compelled to continue medical treatment for years.

Though numerous surgical procedures have been introduced for the relief of the pain of angina pectoris, such procedures are not indicated when medical measures are adequate.

The sudden drops in the systolic and diastolic blood pressure following the administration of spinal anesthetics suggested the possibility that similar effects might be produced in essential hypertension by operations denervating large vascular areas.

Brown, Craig, and Adson have learned that the best results are obtained in the cases of patients under forty years of age who have a history of short duration and slow progression of the disease.

Some of the relief of pain obtained in the treatment of peripheral vascular diseases is accomplished by interrupting afferent sensations which travel in fibers of the sympathetic group, but most of it undoubtedly comes from the restitution of diseased tissue.

In dysmenorrhea, the relief obtained from resection of the superior hypogastric plexus, or presacral nerves, is due undoubtedly to three factors: namely, section of fibers carrying afferent sensations of pain, section of fibers carrying excessive stimuli to the muscles of the uterus, and section of vasomotor fibers which results in an increase of the blood supply of the uterus.

In cases of splanchnic pain, procaine block anesthesia has been employed as a diagnostic procedure in an attempt to select cases for splanchnic nerve resection. If anesthesia of the pain, division of these nerves is justified. Adson has operated in one such case, so far with excellent results, in which three operations had been performed for biliary disease but no stone or active cholecystitis was found.

Sympathectomy is not done in mild cases of Hirschsprung's disease in which medical treatment is adequate, but is indicated when it becomes necessary for the patient to return to the hospital more than two or three times for emptying of the colon or for a still more rigid regimen.

Learmonth and Braasch were the first to advocate presacral neurectomy for cord bladder and spasm of the neck of the urinary bladder.

The operation applicable to patients with urinary retention was found applicable also to those whose urinary flow was slow in starting because of spasm of the internal vesical sphincter, since the sympathetic

nervous system supplies the motor nerves to the sphincter muscles. Presacral neurectomy has proved to be a valuable procedure for both of these conditions.

Dilatation of the ureters from spasm at the entrance of the ureters into the bladder has likewise been relieved by presacral neurectomy.

MISCELLANEOUS

Miller, A.: Neurofibromatosis, with Reference to Skeletal Changes, Compression Myelitis, and Malignant Degeneration. *Arch Surg* 1936, 31: 709.

Neurofibromatosis in its simpler form is easily recognizable from the appearance of typical pigmented spots on the skin and the presence of multiple small subcutaneous nodules. The literature contains records of numerous cases with other extensive pathological changes, involving both the soft and bony tissues, which confused the diagnosis. The author reports a case with extensive involvement of the vertebral column leading to compression myelitis and sarcomatous degeneration of more than one neurofibroma.

The osseous changes in cases of neurofibromatosis are of particular interest to the orthopedic surgeon. The many anomalies of the various bones do not form a characteristic part of the skeletal picture. More important are the alterations of bone which are incidental to the pathological processes. Brooks and Lehman classified these changes as: (1) partial atrophy and arrest of growth, (2) local hypertrophy and hyperplasia, (3) local change of pressure due to the growth of adjacent tumors, and (4) unexplained osteoporosis or malacia of the long bones and the vertebral column.

In some cases the skull and the bones of the face are involved in the pathological changes. They show atrophy more often than hyperplasia or hypertrophy. Occasionally similar changes are found in the long bones. When invasion of the bone is localized the roentgenogram shows defects in the bone covered with a thin layer of periosteum, the subperiosteal cysts described by Brooks and Lehman. Abnormalities in the longitudinal growth of bones have also been reported. Increased length of one of the long bones and shortening due to destruction of the epiphyseal plate have been observed.

The same processes may involve the bones of the trunk, but the incidence of bone changes is highest (about 43 per cent) in the spinal column. The characteristic deformity in the spine is kyphoscoliosis of the lower portion of the thoracic segment. The kyphosis strongly predominates, while the scoliosis is slight and presents a moderate degree of rotation. There is a typical deep abrupt step, the upper portion overhanging the lower. In addition to the kyphoscoliosis, all the osseous changes noted elsewhere may be found in the vertebral bodies and arches.

Of unusual interest in the case reported in this article was complete loss of motor and sensory control of the lower extremities associated with loss of control of the bladder and bowel. Only two cases of complete transverse myelitis with flaccid paralysis and anesthesia have been reported. Cases of neurofibromatosis with cord lesions of various degrees due to concomitant Pott's disease, spinal blisters, or some other anomaly of the vertebral column have been reported, but no such changes were present in the author's case. Except that the paralysis was of the flaccid type, the features of this case showed a distinct similarity to those of compression myelitis associated with spinal curvature.

Pathologically the principal lesion is neurofibromatosis, proliferation of the endoneurium with hyperplastic changes in the perineurium. The lesions vary from the small discrete seed like tumor to the large, coarse, communicating plexiform nevi. The peripheral nerves are involved most frequently but all of the cranial, spinal, and sympathetic nerves may be affected. Pain is usually absent.

Hosoi found that malignant degeneration seldom occurs in more than one tumor nodule. The case reported by the author is therefore of interest also because malignant degeneration was present in seven of the larger tumors. Unusual stimulation of the growth of a benign tumor is strongly suggestive of the presence of malignant changes.

In the author's case there was no hereditary tendency although the presence of such a tendency was demonstrated by Preiser and Davenport. Preiser and Davenport observed also a family resemblance in the location of the tumors and the distribution of the cutaneous pigmentation.

Mental deficiency occurred in many of the cases reported but was absent in Miller's case.

Edward S. Platt, M.D.

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CHEST WALL AND BREAST

Grimón, J. Pain in Malformations of the Last Ribs (Síndromes dolorosos de las malformaciones de las últimas costillas) *Arch de med chir* 1927, 10: 5-17, 20

A great deal has been written about pain caused by congenital malformations of the spinal column, such as occult spina bifida, lumbarization and sacralization of the vertebrae, and cervical ribs, but little attention has been paid to malformations of the lower ribs or supernumerary ribs although the latter may cause severe pain. A thirteenth rib is not infrequent. From autopsy reports it seems to be even more frequent than cervical rib. When such a rib is present the twelfth rib is often extraordinarily large.

As a rule supernumerary ribs are attached to the first lumbar vertebra but they have been found attached also to the second, third or fourth lumbar vertebra. They are generally bilateral. They lead to the formation of new intercostal spaces and changes in the form and size of the lumbar region and are frequently associated with other malformations of the thorax and spinal column. They cause pain by traction on the base of the pleura adherent to them and by contusion from the abnormally large twelfth rib. Sometimes supernumerary ribs which are long and flexible cause pain on certain movements. In the majority of the cases studied by the author the pain was caused by convergence of the last and next to the last ribs which produced pressure on the intercostal nerves. Pain occurred also on respiration and certain movements of the body. In three cases the rib was abnormally low and closely adherent to the base of the pleura and in one case the last rib grazed the ilium. It is difficult to understand why the pain caused by these abnormal ribs generally does not develop until the third decade of life.

Grimón reports the case of a boy ten years old who had an abnormally large and long twelfth rib converging toward the eleventh rib. For several years the patient had had attacks of intense pain in the right side which obliged him to remain in bed and were thought to be of pleural origin. He suffered from particularly intense pain on running, jumping, or making lateral movements of the trunk. Ultimately the twelfth rib was found to be longer than it had appeared in the roentgenogram because the last part of it was cartilaginous and it was continued by a fibrous cord which converged it with the eleventh rib. It was closely adherent to the base of the pleura from which it was dissected with difficulty. After resection of the rib

both the cough from which the patient had suffered recently and the pain ceased.

Of the fifteen patients whose cases were studied by the author, eleven were males. The pain was on the right side in seven cases, on the left in five, and bilateral in three. It was almost always attributed to the kidneys although it can be differentiated from kidney pain by the fact that it is rendered worse by pressure on the rib and the fact that it irradiates along the eleventh or twelfth intercostal nerve and never along the abdominal or genito-crural nerves. It is exacerbated by movements of the trunk, effort, and cough.

ANDREY GOSS MORGAN, M.D.

Berger, I., and Mandelbaum, H. Tuberculosis of the Breast. *Ann Surg*, 1930, 103: 57

After reviewing the literature on tuberculosis of the breast, the authors report twelve cases which were admitted to the Jewish Hospital, Brooklyn, in a period of twelve years. The patients were married women most of whom had borne children, and constituted 1.4 per cent of the total number of persons suffering from breast conditions who were admitted to the hospital during the period under consideration.

The disease is thought to be contracted by (1) direct inoculation of the breast through the irradiated surface of the skin or by way of the skin lymphatics or, rarely, through the milk ducts, and (2) secondary inoculation by contiguity, through the blood stream, or through the lymphatics.

Tuberculosis of the breast is relatively rare as compared with tuberculosis elsewhere and with other diseases of the breast. It is found most frequently in women in the later years of fecundity, usually those who have borne children. In men it is very infrequent. It is usually unilateral. The pathological changes may be divided into the following three groups:

1. The nodular type, consisting of discrete, disseminated, or confluent tubercles. These are usually situated in the connective tissue and rarely in the duct or penducular tissue. Caseation occurs, and sinuses and fistulous tracts may be formed.
2. The sclerosing type. These changes are usually found in older persons. They are characterized by chronicity, a protective fibrosis, and connective tissue infiltration. In the terminal stage the breast is small, hard, and shrunken.
3. Atypical forms, including obliterative tuberculous mastitis with obliteration of the ducts, and intraglandular cold abscess.

Tuberculous mastitis may occur also in association with other conditions, notably adenoma, fibroadenoma and carcinoma of the breast.

Early diagnosis is based on the finding of a discrete slightly tender nodule which tends to become gradually larger with the formation of contiguous nodules. During the stage of liquefaction-necrosis the tenderness increases, fluctuation can be elicited, and the skin tends to become adherent and show signs of inflammation. The skin may rupture, with the formation of a sinus and the discharge of pus. Axillary lymph nodes are frequently involved. The condition must be differentiated from

1. Tumors, by examination of the discharge, if any, and of frozen sections, and by consideration of the history

2. Pyogenic mastitis, by histological and bacteriological examinations

3. Other infectious granulomas, which are very rare and include gummas and actinomycosis

Heretofore the treatment has been almost exclusively surgical, operation offering an unusually good prognosis especially in the primary cases. The only recurrences developed in patients in whom the tuberculous mastitis was secondary to an active tuberculous process elsewhere in the body. Medical treatment is suggested for cases in which the disease is in the early stages and discrete. This consists of a course of tuberculin treatment and good hygienic care. In the one case in the authors' series which was treated medically tuberculin-outment injections were given every four days with ultraviolet irradiation over a period of four weeks. This treatment resulted in cessation of the discharge, a marked decrease in the size of the nodules, improvement in the general health, and a gain of 9 lb. However the patient discontinued the treatment and after a slight break of the breast a few weeks later suffered a severe recurrence. It was felt that if the medical treatment had been continued she might have made a complete recovery. As after the recurrence she insisted on immediate relief a simple mastectomy was performed. Medical treatment is deserving of a thorough trial in early cases as it offers the possibility of cure without loss of the breast.

JAY EDGAR TREMBLAY, M.D.

Battle, R. J. V. and Bailey, G. N. The Treatment of Acute Intramammary Abscess by Incision and by Aspiration. *Br J Surg* 1935 23 64

This is a comprehensive discussion of the treatment of acute abscess of the breast and a review of the methods used and the results obtained at St. Thomas' Hospital, London, in a period of one year. The authors agree with Bernas and with Moon and Gilbert that the causative organism is usually a staphylococcus and rarely a streptococcus. The presence of cracked and sore nipples is undoubtedly an important etiological factor. The authors believe that the essential action of the cracked nipple lies in the engorgement it produces rather than its action as a path of entry for organisms. The prophylaxis of cracked nipple is described. Before engorgement, this consists of scrupulous cleanliness, the use of a hardening material such as Friar's

balm and perchloride of mercury and the use of a shield or if necessary a breast pump. After engorgement, the treatment depends upon whether the condition is local or diffuse. In the localized type, it is from first to last the use of the breast pump. In the diffuse type the breast should be emptied frequently and hot applications applied.

In the first forty-two of the seventy-one cases of abscess reported the treatment of the abscess was incision and drainage. Later the authors concluded that in many cases breast abscesses may be treated by aspiration with a wide-bore needle after preliminary anesthesia with novocain. At first they followed this by the injection of "Bovillon Vaccin No. 31" supplied by Riche. When the supply of this substance was exhausted, Dakin's solution was used, an amount of half-strength solution equal to that of the aspirated pus being injected through the aspirating needle. One aspiration is said to be sufficient for the treatment of small superficial abscesses. For the commoner deeper abscess, repeated aspirations are usually necessary. The advantages of the aspiration procedure are that it can be performed single handed and under local anesthetic and as scarring is minimal the ultimate cosmetic and functional result is far better than after other methods. When the abscess is very large, immediate incision is necessary to drain the cavity and relieve the tension. In cases of diffuse cellulitis, the prognosis is poor regardless of the method employed, but the procedure of choice is incision and exploration.

HAROLD C. OCHSNER, M.D.

TRACHEA, LUNGS, AND PLEURA

Alinet, and Corailler. The Future of Artificial Pneumothorax Discontinued Early (L'avenir des pneumothorax artificiels précocement abandonnés). *Arch int chir de l'appar respir* 1935 10 24

While the therapeutic value of pneumothorax in certain forms of pulmonary tuberculosis is well recognized, there is no unanimity of opinion as to the time at which the pneumothorax should be discontinued. It is generally taught that even in cases of apparent cure the pneumothorax should be maintained for at least four years. However the question arises whether certain cases may not be cured by pneumothorax of shorter duration. In an attempt to answer this question, the authors collected observations on eighty-eight patients treated by pneumothorax for less than two years. As in the cases of four patients there was a double pneumothorax, the total number of observations was ninety-two.

Of the ninety-two observations, sixty-three (68.4 per cent) showed favorable results. There were fifty-six complete and seven relative cures. The period of observation is not mentioned. There were fourteen cases in which the pneumothorax was discontinued because of an unfavorable reaction, and fifteen cases in which there was a favorable reaction

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at first, but a recurrence developed several months or years after discontinuation of the pneumothorax. The total number of unfavorable results was therefore twenty-nine, and the incidence of such results 31.6 per cent.

In many of the cases with favorable results it was found that the pneumothorax was discontinued because of obliteration of the pleural cavity. The conclusion is reached that if this condition develops the pneumothorax should be stopped as cure will be almost certain. In spite of the incidence of relatively favorable results found by this study (68.4 per cent), the authors do not recommend voluntary abandonment of pneumothorax before a period of two years, even in cases of apparent clinical cure.

MAX M. ZINZINGER, M.D.

Hennell, H. Cystic Disease of the Lung. *Arch. Int. Med.*, 1936, 57, 1.

Air cysts of the lung present difficult problems in diagnosis and treatment. According to most theories, the origin of cystic disease of the lung is a congenital or an acquired defect in the bronchi. The two main types of cysts are: (1) those originating from bronchial dilatations, the walls of which therefore show all the structures of a bronchial wall, and (2) those which resemble emphysematous blebs. The cysts may be solitary or multiple. The solitary or balloon cysts occur as a rule in infancy or early childhood and are rare. They are large and usually fatal in early life. The multiple cysts are more frequent, usually cause few symptoms, and may be discovered only accidentally late in life. Multiple cysts may be bullous, bronchiectatic, or of a mixed type of structure. They vary greatly in size, distribution, and type of bronchial communication, and in the nature of their contents. They may contain fluid and may become infected.

Pneumonitis and fibrosis are the commonly associated lesions in a cystic lung. They may be the cause of the cystic condition in the acquired form of the disease, but it is quite possible that in many cases they are the result of infection of the cysts.

The presence of a solitary or balloon cyst is characterized by acute attacks of dyspnea and cyanosis. Parmelee and Apfelbach postulated the following sequence of events:

A small congenital cyst exists at birth. Progressive enlargement of the cyst takes place in the course of time as the result of increasing tortuosity of the bronchial communication with the establishment of a check-valve type of opening. With a rapid increase in the size of the cyst, the intracystic pressure rises, eventually leading to rupture. This results in a tension pneumothorax with marked dyspnea and cyanosis, which may end fatally.

In the adult, cystic disease of the lung is usually accompanied by recurring hemoptysis, attacks of pain in the chest and dyspnea, a productive cough, and foul expectoration. The diagnosis may be a baffling problem as the condition may simulate benign bronchial bleeding, pulmonary tuberculosis,

tension pneumothorax, emphysema due to obstruction by a foreign body, bronchial neoplasm with stenosis, putrid pulmonary abscess, and bronchiectasis. To determine the presence, type, size, location, and complications of pulmonary cysts the author employs roentgenography, fluoroscopy of the chest, bronchoscopy, and bronchography with the use of iodized oil.

The pneumodynamic mechanisms in the development, enlargement, and spontaneous disappearance of the cysts or their rupture with the production of tension pneumothorax are analyzed, and the production of mediastinal displacement and bronchial distortion by large cysts with high intracystic pressure is discussed.

The therapeutic procedures include artificial pneumothorax, extirpation of cysts, and the injection of iodized poppy-seed oil.

Eight cases of cystic lung disease are reported in detail with roentgenograms.

MAURICE P. MEYERS, M.D.

Farrell, J. T., Jr. The Diagnosis of Bronchial Carcinoma. A Clinical and Roentgenological Study of Fifty Cases. *Radiology*, 1936, 26, 261.

Of the fifty cases of bronchial carcinoma reviewed by the author, forty-five were those of males. In twenty-three cases the diagnosis was squamous cell carcinoma, in three, adenocarcinoma, and in twenty-four, undifferentiated carcinoma.

Cough was practically always present, and was the initial symptom in 40 per cent of the cases. Pain, hemoptysis, and dyspnea were also important symptoms.

There is a striking tendency for patients to disregard the early symptoms. More than half of the author's patients did not seek medical advice until the first symptom had been present for a year or more.

The most common roentgen sign is evidence of atelectasis. When this is found it should be presumed to be due to an intrabronchial neoplasm until another cause is discovered. In addition to atelectasis, there is an atypical increase in the pulmonary markings which suggests an inflammatory change. Frequently the tumor can be recognized. Pulmonary abscess may also develop.

JOSEPH K. NARAT, M.D.

Arkin, A., and Wagner, D. H. Primary Carcinoma of the Lung. *J. Am. M. Ass.*, 1936, 106, 587.

Primary carcinoma of the lung is one of the most frequent forms of malignancy in adults. It ranks second to gastro-intestinal carcinoma and constitutes from 6 to 8 per cent of all malignant tumors. About 75 per cent of primary pulmonary carcinomas occur between the ages of forty and sixty years. In the authors' series of 135 cases the condition was 12 times as frequent in males as in females. Its most common site was the upper right lobe.

The tumors are all of bronchogenic origin and begin as a metaplasia of the basal epithelial cells. There are 3 important histological types: (1) the undifferen-

thiated round-cell or spindle-cell carcinoma, (2) the adenocarcinoma, and (3) the squamous-cell carcinoma. All types have a marked tendency to produce lymphogenic and hematogenic metastases, but the squamous-cell carcinoma is usually less malignant than the others. Of 74 cases that came to autopsy metastases were discovered in all but 1. They were found in the hilar glands in 88 per cent, in abdominal lymph nodes in 38 per cent, in the liver in 40 per cent, in the kidneys in 33 per cent, in the suprarenals in 43 per cent, in bones in 28 per cent, and in the brain in 24 per cent. The chief associated lung changes were pleural effusions (47 per cent) bronchiectases (43 per cent) acute pneumonia (18 per cent) chronic pneumonia (30 per cent) abscess or gangrene (30 per cent) and purulent bronchitis (19 per cent).

In 51 per cent of the cases the signs and symptoms were predominantly outside the lungs. In only 40 per cent were the changes largely thoracic. This important fact explains the failure of most clinics to diagnose 50 per cent of the cases. In the hope of bringing the incidence of correct diagnosis up to 50 per cent, the authors divide the cases into the following clinical types: (1) pulmonary, (2) osseous, (3) cerebral, (4) cardiac, (5) gastro-intestinal, (6) lymphoglandular and (7) hepatic.

The peculiarly characteristic history of pulmonary well-being for an average period of eight months before medical aid is sought, followed by the development of bronchitis or recurrent attacks of pneumonia or pleurisy with later a persistent cough, pulmonary or extrapulmonary pain, hemoptysis, and dyspnea should lead the physician to suspect lung carcinoma. In most cases a characteristic complex of physical changes is observed. In at least two-thirds of the cases roentgen examination is necessary for the diagnosis. Bronchoscopy is of great value in confirming the diagnosis but is not essential in most cases. The presence of one of the 3 types of carcinoma in a biopsy specimen from a bronchus, lymph nodes, pleural exudate or tissue found in the sputum will establish the diagnosis.

WALTER S. W. TOWERS, M.D.

ESOPHAGUS AND MEDIASTINUM

King, R. B. J. Esophagectomy for Carcinoma of the Thoracic Esophagus. *Br. J. Surg.* 2:5 22, 511

X-ray examination of the esophagus of a woman fifty-six years of age revealed an obstruction opposite the junction of the sixth and seventh thoracic vertebrae. Esophagoscopy disclosed a mass projecting into and constricting the esophagus 1.5 in. from the incisor teeth. Microscopic examination of a removed portion of the mass showed the tumor to be an epidermoid carcinoma.

Gastrostomy (Senn) was performed under local block anesthesia.

Energetic treatment of the mouth condition had been given, but the teeth were not removed. The

patient was placed on a high caloric diet with an adequate vitamin content. The feedings were given through the gastrostomy tube at intervals of three hours. Artificial pneumothorax of the left side was produced by the injection of increasing amounts of air every other day.

Five days later, under nitrous oxide and oxygen anesthesia and through a paravertebral incision, the vertebral ends of the fourth, fifth, and sixth ribs on the left side were cut and the intercostal vessels and nerves ligated and cut. The wound was then sutured. The patient recovered from this procedure uneventfully.

As her general condition was good, the esophagectomy was done three days later. Under avertin and intratracheal nitrous oxide and oxygen anesthesia and with the patient in the right lateral position, an incision was made along the sixth intercostal space and connected at its vertebral extremity with the lower end of the paravertebral incision previously made. The trapezius and latissimus dorsi muscles were incised and hemostasis was obtained. The wound made at the preliminary operation in the trapezius and rhomboids on the medial aspect of the scapula was opened up. The intercostal muscles of the sixth space and the underlying pleura were then incised and the incision in the pleura continued upward, at the vertebral end, to the third rib.

An incision was then made in the mediastinal pleura, just in front of the descending aorta, from the diaphragm to the arch of the aorta, and another in line with this one from the arch to the cupola of the pleura.

The mediastinal tissues in the lower part were dissected partly by sharp and partly by blunt dissection, and the esophagus was freed so that a tape could be passed round it and then separated upward and downward from this point until it was free throughout its extent from the diaphragm to the arch. The major vessels were grasped with forceps, cut, and then sealed with the electric cautery. At an early stage of this procedure both vagi were cut across sharply opposite the left bronchus. This procedure did not cause any appreciable alteration in the pulse rate or blood pressure. The tumor was found just below and partly behind the arch of the aorta, and appeared not to have infiltrated the surrounding structures.

Dissection of the mediastinum above the arch of the aorta was then undertaken and the esophagus freed down to, and around, the tumor. Next, the esophagus below the arch was drawn out and moist gauze was placed in the esophageal bed. The upper part of the stomach was drawn slightly through the diaphragmatic opening and a parasternal incision placed in its upper part so as to surround the esophagus. The lower end of the esophagus was tied in two places with heavy silk and cut across with the electric cautery. It was then invaginated into the stomach and the parasternal incision tied. A second parasternal incision was introduced into the diaphragm just peripheral to the first one and also tied.

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The upper cut end was covered with a rubber sheath, which was tied on by two separate ties at an interval of 1 in to prevent leakage of infected material from the cut end on to the mediastinal surface. The esophagus was then brought around the arch of the aorta so that it hung from the upper part of the mediastinum into the pleural cavity.

The wound was then closed temporarily and an incision made in the neck along the anterior border of the sternocleidomastoid in its lower portion. Dissection was carried posteriorly down to and along the esophagus into the superior mediastinum until the cervical and thoracic dissections were joined. The chest wound was then re-opened and a pair of forceps passed into the neck wound and down into the mediastinum until it could be seen in the chest. It was thus possible to grasp the more distal tie on the esophagus and draw the esophagus into the chest. A drainage tube was passed through the eighth intercostal space in the posterior axillary line and the chest wound then closed. The mediastinal pleura was left unsutured to allow drainage.

Next, the esophagus was inspected and the site of division determined. An incision was made in the skin just below the clavicle, and the subcutaneous tissues were tunnelled from the incision in front of the sternocleidomastoid to the lower incision. The esophagus was brought through the tunnel and sutured to the skin edges. The protruding portion (containing the tumor) was then removed by incision with the electric cautery. A few interrupted sutures were introduced to unite the mucosa to the skin. A small drainage tube was passed into the upper mediastinum through the main neck wound and the latter then sutured. The drainage tube in the chest was connected with a negative-pressure apparatus. A transfusion of a pint of blood was given, saline solution administered by the subpectoral route, and glucose-saline solution given by continuous rectal infusion.

Although her general condition was improving markedly, the patient did not gain weight. It was thought that this might be due to the loss of saliva during the time when the rubber tube was not in

position. A celluloid cup with an outlet at the lower end was therefore placed over the esophageal opening and the lower end connected by means of a tube with the gastrostomy. By this means the patient was enabled to obtain the greater part of the saliva escaping from the esophageal opening. She then rapidly regained her normal weight.

The negative pressure of the thoracic cage has always been one of the chief problems of surgery of the thorax. Many attempts have been made to overcome the difficulty by an extrapleural approach to the esophagus. As this gives inadequate exposure, the pressure chambers used by Sauerbruch were invented to overcome the difficulty. The introduction of intratracheal anesthesia has been a further advance. Now, however, with the use of an apparatus which delivers gas through a well-fitting mask at a slight positive pressure, even the intratracheal tube may be dispensed with.

The procedure of applying slight suction solves the problem of drainage of the chest, which is an essential part of the after-treatment.

In transpleural approach to the mediastinum, the sudden collapse of the lung with sudden alterations in the vital capacity, disturbance of blood distribution, and movements of the mediastinum place an unnecessary burden on the already over-strained patient. The preliminary induction of pneumothorax overcomes these troubles.

Almost all attempts to anastomose the ends of the esophagus in the mediastinum have been unsuccessful. Not only would the excision of a small piece of esophagus be inadequate to cure an esophageal cancer, but leakage would be almost inevitable as this part of the alimentary canal has no coelomic covering.

The necessity for special care to prevent infection is apparent from the fact that the majority of patients operated upon die of mediastinitis or pericarditis within a few days after the operation. Not only must every precaution be taken to prevent infection at the operation, but prophylaxis by thorough cleansing of the oral cavity is necessary.

JOSEPH K. NARAT, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Leveuf, J., Laroche, R., and Perrot, A.: Three Cases of Persistence of the Omphalomesenteric Duct: Congenital Umbilical Fistula (Trois cas de persistance du canal omphalo-mésentérique fistule ombilicale congénitale) *Ann. Chir. Path.* 1935, 18: 115

Complete persistence of the omphalomesenteric duct, known as "congenital umbilical fistula," has received much less attention than Meckel's diverticulum. The authors base their observations on three cases of the condition occurring, as is most usual, in boys. In two of the cases small amounts of intestinal contents, and in one case, a grayish fluid escaped. In one case the fistula opened at the base of the umbilical scar, was purely cutaneous, and contained no trace of the red mucosa observed in many cases. The canal in this case was lined with epidermis. In the two other cases the fistula opened at the summit of a tumor covered with bright red mucosa. In one of the latter the everted mucosa covered the surface of the tumor to the site of its umbilical insertion. In the other the mucosal polyp was poised on a cylinder covered with skin.

It is generally agreed that the red tumor at the apex of which the fistular orifice appears represents a simple mucosal prolapse. The authors are of the opinion that the mucosal eversion constitutes merely a stage of constriction after the cord falls off.

One of the feared complications of congenital umbilical fistula is total prolapse of the intestine. In cases of true prolapse operation must be performed before strangulation and gangrene develop. In cases of simple eversion, which is very well tolerated, it is permissible to postpone operation to the most favorable age for such a procedure.

In the authors' cases two types of mucosa were found. Near the opening of the duct into the small intestine the mucosa was identical with that of the intestine, but near the umbilical orifice it was of the pyloric type. In other cases glands similar to those of the fundus of the stomach have been noted, and in still others, Brunner's glands or small nests of pancreatic tissue. However the juxta-umbilical portion of the duct is not always lined with gastric mucosa. In many cases the entire fistula is lined with intestinal mucosa. The gastric mucosa in congenital umbilical fistula behaves exactly like true gastric mucosa. It secretes a fluid with all the characteristics of gastric juice. Even peptic ulcers have been known to develop in it, especially at the junction of gastric and intestinal mucosa, just as in the digestive tract. Fischel's theory of a phagocytosis or plurivalence of the cells of the primary ectoderm is today generally accepted. It is possible that the

secretions of this mucosa behave as in peptic ulcers and create an early or late fistula of the omphalomesenteric duct by their digestive action on the walls.

FRIEDRICH SCHWABE, M.D.

Ueda, H., and Mabuchi, W.: Experimental Investigations on the Function of the Great Omentum (Experimenteller Beitrag zur Kenntnis der Funktion des grossen Netzes) *Deutsche Zeits. f. Chir.* 1935, 245: 390

In order to aid in clearing up the problem of the function of the great omentum, the authors investigated the influence of extirpation of the great omentum on the organisms of experimental animals.

HISTOLOGICAL INVESTIGATIONS

Histological investigations were made of the changes occurring in the abdominal organs of rabbits after extirpation of the great omentum. The liver, kidneys, spleen, mesenteric glands, and stomach were carefully examined macroscopically and microscopically at various intervals after extirpation of the omentum.

Soon after the operation, cloudy swelling, degenerative fatty infiltration, and loss of glycogen occurred in the hepatic cells. In eighteen of sixty six rabbits localized or diffuse necrosis was found in the hepatic parenchyma. Twenty days after the operation an enlargement of the Kupfer star cells, even localized nodular proliferations, and also, masses of cells in Glisson's capsule were observed. From the thirtieth day after the operation the glycogen content of the hepatic cells gradually increased.

In the kidneys, hyperemia and degenerative changes of the epithelium of varying degree were noted first. In some of forty four animals, interstitial hemorrhages occurred. Later enlargement and proliferation of the histiocytic cells of the kidney were found. In some cases newly formed lymphocytes and haemolytic cells were demonstrable more than fifty days after the operation.

In the spleen, infiltration of the splenic pulp and lymph follicles were noted. There was a gradual enlargement of the endothelial cells in the sinus walls and the pulp. The brownish pigment granules increased.

The mesenteric glands showed lymphadenitis, atrophy, and, finally, enlargement and proliferation of the histiocytic cells with phagocytes of the brown pigment granules.

In six of forty four animals pronounced ulceration of the stomach was found. In fourteen, there were ulcers of the mucous membrane. After from sixteen to twenty days, cystic dilatation of the gastric glands and proliferation of the propria were observed.

In toxic tests, rabbits were injected with a definite quantity of typhoid bacillus toxin, their power of resistance being then investigated. Of the seventeen rabbits deprived of the omentum, twelve died, whereas of eighteen normal rabbits, only three died. The result showed that the animals without an omentum were more sensitive to toxin than the others.

In studies of the influence of extirpation of the great omentum on iron metabolism it was found that from the fourth day after the operation an iron reaction appeared in the stellate cells of the liver, the histiocyte cells of the lungs, and the lymph glands. In the cells of the lungs and the lymph glands the reaction increased in intensity up to the fourteenth day and then disappeared. In the stellate cells in the liver it was most intense after twenty days and then gradually weakened up to the seventy-fifth day. In the hepatic cells and the histiocyte cells of the interlobular connective tissue it did not show any weakening for one hundred twenty days. It was much stronger in the spleens of the animals deprived of the great omentum than in the spleens of the normal animals. In the kidneys, it was demonstrable in Bowman's capsule and in the uriniferous tubules from the first day but after thirty days it was weak.

In investigations of the effect of removal of the great omentum on the blood it was found that from one to seventeen days after the operation the erythrocytes and the hemoglobin decreased, and after from three to fourteen days the leucocytes decreased. Arneeth's blood picture shifted to the right, and the eosinophiles disappeared. The viscosity of the blood was lowered. The erythrocyte sedimentation rate was accelerated for fourteen days after the operation, and then became definitely slower. The resistance of the erythrocytes to hypotonic sodium chloride solutions was strengthened for from three to fourteen days.

In rabbits deprived of the great omentum, a decrease in precipitin formation occurred. After complete immunization followed by extirpation of the omentum a distinct disturbance of precipitin formation was noted.

INVESTIGATIONS ON THE METABOLISM

When the omentum was entirely removed, the fasting blood sugar increased within two weeks. After twenty-one days the maximal value of the blood sugar was below normal, as it was immediately after the operation. Thirty days after the operation the blood sugar reached the value it had at the beginning of the experiment. Adrenalin hyperglycemia was increased immediately after the operation and later delayed. After twenty-one days it again showed an increase. When the omentum was ligated, the fasting blood sugar showed little change. Partial adhesion of the great omentum to the abdominal wall caused a slight, indefinite change. When the spleen was extirpated, the fasting blood sugar increased for ten days after the operation. Glucose

hyperglycemia showed a sharp increase after five days and then a slow decrease. At the end of three weeks the findings were normal. The adrenalin hyperglycemia continued to rise for about a month after the extirpation. Its fall was then, in general, gradual, whereas previously it was rapid. The part played by the spleen in sugar metabolism is therefore small.

These findings show that extirpation of the omentum has a marked effect on the carbohydrate metabolism. The changes perhaps depend less upon the removal of the omentum than upon the temporary postoperative dysfunction of the reticulo-endothelial system and especially the resulting changes in the liver.

The glycogen content of the liver was distinctly increased the first day after the operation. After five days it decreased, and at the end of twelve days it increased again. After twenty-one days it was normal. The changes in muscle glycogen varied and were not significant. The body weight decreased slowly, and its changes usually paralleled that of the glycogen content of the liver.

In studies of the influence of omental function on the content of protein in the blood plasma, it was found that after a simple laparotomy the control animals showed no definite changes in the protein content, protein index, fibrinogen, or residual nitrogen content of the plasma. After extirpation of the omentum the total protein content showed a tendency to increase. After thirty days, the disturbance quieted down. From the first day after the operation the fibrinogen decreased distinctly, but after three weeks it returned to normal. On the other hand, globulin increased, and at the end of four weeks had not yet returned to normal. When the omentum was ligated, the total quantity of protein showed no distinct change. This was true also when the omentum was partly adherent to the abdominal wall. After extirpation of the spleen, the deviations from normal in the proteins of the blood were less marked than after extirpation of the omentum.

After simple laparotomy the variations in the total fatty acid and cholesterol content of the blood were slight and inconsequential. After extirpation of the omentum, on the other hand, the blood cholesterol showed a great increase. The maximum was reached at the end of two weeks. After a month the value was normal. The total fatty acid content also increased. The increase was greatest from seven to ten days after the operation. After three weeks there were no further changes. When the omentum was ligated, there was an increase of cholesterol and fatty acids which lasted only about a week. With partial adhesion of the omentum there were only insignificant changes in the fat and lipid content of the blood. After extirpation of the spleen the cholesterol content decreased markedly and the fatty acid content increased to a less degree. The maximum was reached after from one to two weeks, and there was a return to normal at the end of a month. In splenectomized animals the changes in the blood

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Lévesot, J., Leroux, R., and Perrot, A.: Three Cases of Persistence of the Omphalomesenteric Duct: Congenital Umbilical Fistula (Trois cas de persistance du canal omphalo-mésentérique: Fistule ombilicale congénitale) *Ann. Chir. Path.* 1935, 1 015

Complete persistence of the omphalomesenteric duct, known as "congenital umbilical fistula" has received much less attention than Meckel's diverticulum. The authors base their observations on three cases of the condition occurring, as is most usual in boys. In two of the cases small amounts of intestinal contents, and in one case a grayish fluid escaped. In one case the fistula opened at the base of the umbilical scar was purely cutaneous, and contained no trace of the red mucosa observed in many cases. The canal in this case was lined with epidermis. In the two other cases the fistula opened at the summit of a tumor covered with bright red mucosa. In one of the latter the everted mucosa covered the surface of the tumor to the site of its umbilical insertion. In the other the mucosal polyp was poised on a cylinder covered with skin.

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secretions of this mucosa behave as in peptic ulcer and create an early or late fistula of the omphalomesenteric duct by their digestive action on the walls.

EDITH SCHWABER MOORE.

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Umbert The Prognosis and Treatment of Massive Hemorrhages Due to Ulcer (Zur Prognose und Behandlung grosser Ulcusblutungen) *Deutsche med Wchschr*, 1935, 2 1265

The purpose of the study reported in this article was to determine whether massive hemorrhages due to ulcer are so seldom fatal when treated medically as is generally believed. The German literature does not answer this question.

The author reports on 433 medically treated cases of severe hemorrhage from ulcer which were among 1,852 cases of gastric and duodenal ulcer seen in the last sixteen years. Forty-one (9.5 per cent of the patients with hemorrhage and 2.2 per cent of the total number of patients with ulcer) died of hemorrhage. Therefore the mortality of massive hemorrhages due to ulcer which are treated medically is higher than is generally assumed. In 21 of the 41 patients who died an open eroded artery was found to be the source of the bleeding.

The diagnosis of the source of the bleeding must be based on the history and the symptoms. The clinical diagnosis can be made only after the hemorrhage has completely ceased. Of most importance is arrest of the hemorrhage. The absolute amount of blood lost is of less significance than the tendency of the bleeding to continue or recur. The hemoglobin and pulse curves are indicative of the patient's condition. When the hemoglobin is less than 50 per cent there is danger, and when it is between 20 and 30 per cent the condition is critical. As a rule the pulse rate increases.

At first the patient should be kept absolutely quiet in bed and given pantopon or some other narcotic. To arrest the hemorrhage, from 10 to 20 c.cm. of a hypertonic solution with a 10 per cent content of sodium chloride and a 0.02 per cent content of calcium chloride or a 10 per cent content of calcium gluconate, and, in addition, 0.2 c.cm. of a solution of strychnin per kilogram of body weight may be given by intravenous injection several times daily. When the stomach becomes filled with coagulated blood it is washed out with ice water containing adrenalin. The emptied stomach contracts under the stimulation of the cold. On the first day nothing should be given by mouth. Thirst may be prevented by the subcutaneous, intravenous, or rectal administration of normal salt solution containing symptol. On the second day, cracked ice, cold gelatin, milk gruel, and a 5 per cent dextrose solution may be given in teaspoonful quantities. Small amounts of chilled butter are of value to supply calories and decrease the secretion of hydrochloric acid. Soon, the patient's strength may be increased more quickly by the frequent administration of small quantities of fluids and gruels richer in calories and protein. The diet should not contain meat or meat extractives. The vitamin requirements may be met by 2 intravenous injections of 1 c.cm. of cebion. Nutritive enemas are to be avoided as they stimulate gastric peristalsis and secretion. In some cases blood transfusion to replace the blood lost and stop the hemor-

rhage may prove life saving. The transfusion of from 300 to 500 c.cm. may be repeated on several days. To stimulate the regeneration of blood after control of the hemorrhage, intramuscular injections of 2 c.cm. of strong pernaemyl may be given daily on from three to seven successive days and then in doses of 4 c.cm. once a month with the periodic administration of 1 gm. of reduced iron.

Of the 39 patients with bleeding ulcer who were operated upon, only 32 could be traced. Twenty-five were cured—19 by resection and 6 by gastroenterostomy. Seven died in spite of the operation. Three of these had a gastric carcinoma. Therefore among the 433 cases of massive gastric hemorrhage there were 3 of gastric carcinoma which were not recognized before operation. Of the 20 other cases of bleeding ulcer coming to operation, 23 were cases of gastric ulcer (in only 2 of which perforation had occurred) and 5 were cases of duodenal ulcer. In 1 case the source of the hemorrhage could not be determined.

The author concludes that massive hemorrhage from ulcer should first be treated medically as in 82 per cent of the reviewed cases the bleeding was controlled by such treatment. Operation is to be considered only when, despite medical treatment, the bleeding recurs, the hemoglobin and the patient's strength decrease, and the pulse rate increases. In cases of definite recurrent hemorrhage, operation should be performed, if possible, in an interval between the hemorrhages. From the practical point of view the danger of so-called resection anemia has been exaggerated. Pernicious anemia following gastric resection is very rare.

(HEMPER) SAMUEL J. FOGELSON, M.D.

Pototschnig, G. The Diagnosis and Treatment of Peptic Ulcer Perforated into the Peritoneal Cavity (Sulla diagnosi e terapia dell'ulcera peptica perforata in peritoneo libero) *Arch ital di chir*, 1935, 40 649

The author reports a case of perforated peptic ulcer in a man forty years of age who was operated upon in January, 1928, for ulcer of the duodenum. For about three years after the operation the patient was well, but at the end of that time he began to suffer from more or less intense pain after meals, distention, pyrosis, and acid eructation. In July, 1931, roentgen examination was negative. On October 6, 1933, after a rapid decline in his general health over a period of several months, the patient suddenly suffered intense epigastric pain and collapsed. He was immediately brought to the hospital where a probable diagnosis of perforated peptic ulcer was made. Gastroduodenal resection and resection of the anastomotic loop was followed by uneventful recovery. The patient now feels much better than after the first operation.

The diagnosis of postoperative peptic ulcer is suggested if abdominal pain occurs in a patient who has had an operation for ulcer. The symptoms of perforation of such an ulcer are essentially the same as

cholesterin were found to be similar to those following removal of the omentum. The change in the cholesterin content was greater than that in the fatty acid content.

(Lorenz). FLORENCE ANNAN CARPENTER

GASTRO-INTESTINAL TRACT

Cain, A., and Gorthmann, G.: Subcardiac Diverticula of the Stomach (Les diverticules sous-cardiaques de l'estomac). *Presse méd. Par.* 330 44 31

The authors state that diverticula of the stomach are formed by the evagination of a small portion of the gastric wall which forms a sac, more or less rounded, opening into the lumen of the stomach. They occur either near the cardia (subcardiac type) or near the pylorus (prepyloric type). Until the development of roentgen study of the gastro-intestinal tract, diverticula of the stomach were considered rare as they were discovered only occasionally at autopsy or at operation for some other condition, when their presence had not been suspected clinically.

The authors report a case of diverticulum of the stomach near the cardia and present a discussion of this type of diverticulum based on this case and a review of the literature. In their case there was a history of attacks of gastric pain for a year. These attacks were not accompanied by vomiting or bleeding, but the patient had lost appetite and weight. Physical examination was negative. Roentgen examination with the opaque meal was at first negative with the patient in the upright position and in dorsal and ventral decubitus, but when the patient was turned before the fluoroscopic screen, a small opaque area was seen just below the cardia. With the patient in the oblique position, this opaque area was seen to be a small sac separated from the gastric wall. In the Trendelenburg position, the sac was clearly outlined. A second roentgenogram made with the patient upright showed that the sac had not emptied when the opaque meal left the stomach. The gastric acidity was normal. The attacks of pain were relieved by bismuth subnitrate and belladonna.

Subcardiac diverticula of the stomach, the authors find, always originate as in their case, on the posterior wall of the lesser curvature. The pedicle is from $\frac{1}{2}$ to $1\frac{1}{2}$ cm. in length. The diverticula are relatively mobile, showing no attachment to the peritoneum, the diaphragm, or neighboring organs. It is difficult to determine their frequency for as a rule they do not cause symptoms. Hence they are usually discovered only in the course of roentgen examination of the gastro-intestinal tract or at operation. In some cases, however, as in the above case, there are symptoms suggesting an abdominal lesion. There may be slight gastric symptoms or the clinical picture may suggest gastric ulcer or chronic cholecystitis. None of the reported cases indicates that a true diverticulitis develops in

a gastric diverticulum near the cardia. However, a number of reports show that a variety of lesions may be associated with such a diverticulum though they are apparently entirely independent of it. These lesions may be the cause of the symptoms. In some cases there is no discoverable lesion other than the diverticulum to account for the symptoms (as in the authors' case). In these, the symptoms vary. There is no pathognomonic sign or characteristic symptoms of subcardiac diverticulum.

The diagnosis may be made by endoscopy which permits direct vision of the orifice of the diverticulum. In cases in which this method has been used, neither edema nor inflammation at the site of the orifice has been observed. Roentgen examination makes it possible to visualize the diverticulum. With the patient in the upright position, the diverticulum may appear as an opacity suspended outside the stomach and definitely separated from the gastric opacity or as a small opacity in a clear area. In the oblique position, the diverticulum and its connection with the gastric wall are clearly visible. Its outlines are well-defined and regular. If the sac is not entirely filled with the opaque medium, there may be an air bubble above the opaque area. While the diverticulum is usually not visible with the patient in the dorsal decubitus it is advisable to make a second examination with the patient changed to the upright position after lying in the dorsal position as this favors better filling of the diverticulum and gives a clearer image, especially after the stomach has partially or completely emptied. If there is no associated lesion (as in the authors' case) the roentgen appearance of the stomach and duodenum is otherwise entirely normal and the gastric secretion is normal.

There are a number of theories with regard to the pathogenesis of subcardiac diverticula. The authors believe that in some individuals there is an area of diminished resistance in the posterior gastric wall due to failure of the peritoneum to become attached as closely as normal to its surface, and that in this area a "hernia" of the gastric wall occurs as the result of hypertonia of the upper gastric pole.

The authors are of the opinion that if a subcardiac diverticulum is causing no symptoms, no treatment should be attempted. If there are associated lesions, these should be treated. If there are no such associated lesions and the symptoms are apparently due directly to the diverticulum, as in their case, the administration of bismuth subnitrate will relieve the symptoms. The action of this drug in cases in which there is no demonstrable inflammation of the diverticulum and no abnormality of the gastric secretion or motility is difficult to explain. The authors are of the opinion that the bismuth subnitrate acts as a topical application to the diverticulum, which saturates or forces out the accumulated secretions and coats and protects the mucosa. If this hypothesis is correct, the symptoms are due to some inflammatory reaction in the diverticulum.

LEON M. MERRIN

those in which the adequacy of the suture line is questionable, a complementary jejunostomy should be added to provide a means for immediate nourishment and to place the stomach at rest so that healing of the suture line may occur without danger of leakage.

The author discusses also the problems of ulcer cancer. According to his experience, the size of the lesion is of no great aid in determining its nature. Large spreading peptic ulcers of the stomach are encountered as frequently as small carcinomatous ulcers. The clinical history may be very misleading during the early stage of the disease. Roentgen findings are also often misleading or of no value. However there is little question that gastric symptoms appearing in an individual over forty years of age who has had no previous complaints is very suggestive of cancer. Since it is impossible to differentiate gastric ulcer from gastric carcinoma with certainty or to determine whether an ulcer will become cancerous, the only hope for cure lies in early resection.

The treatment of gastrojejunal ulcer is far from satisfactory. The only medical therapy bringing about decided relief is mucin therapy. As a rule patients with protracted severe symptoms are devitalized and starved and therefore poor surgical risks. Wolfer believes the procedure of choice for such patients is jejunostomy and jejunal feeding. By this means the pain will be relieved and the patient may be adequately nourished for a long period of time. Such treatment will permit the ulcer to heal so that a reconstructive operation may be performed later with relative safety.

Restoration of the continuity of the gastro-intestinal tract after gastro-enterostomy for duodenal ulcer is usually followed by prompt recurrence of the duodenal ulcer. Disconnecting the gastro-enterostomy, resection of the ulcer, and the establishment of a new gastro-enterostomy yields a cure in only 20 per cent of cases, whereas after wide resection and an anastomosis of the Polya type, the incidence of cure ranges from 60 to 70 per cent.

The treatment of a gastroduodenal fistula is surgical, but in the entire realm of surgery there is no other operation which is so time-consuming and difficult. The required procedure includes separation of the colon from the stomach with, in some cases, partial resection followed by anastomosis, separation of the jejunum from the stomach, excision of the jejunal ulcer, which may entail temporary jejunostomy and end-to-end jejunal anastomosis, and finally, gastrectomy with gastrojejunostomy.

In conclusion the author states that many poor, if not disastrous, results have been due to indiscriminate surgery or illogical operative procedures. Operations have been condemned because they have been performed when they were contra-indicated. This is true of gastro-enterostomy.

For the best results in cases of peptic ulcer cooperation between the internist and surgeon is essential. If each case is individualized and is studied from the viewpoint that peptic ulcer is the local manifestation

of a constitutional disease and if the disease is treated as a whole, fewer cases will reach the stage at which surgery is necessary. If the cases requiring surgery are further studied, it will be possible to find logical surgical procedures which will relieve the symptoms in a large number of them.

SAMUEL J. FOGELSON, M.D.

Rigler, L. G., and Ericksen, L. G. Benign Tumors of the Stomach. Observations on Their Incidence and Malignant Degeneration. *Radiology*, 1936, 26, 6.

Benign tumors of the stomach can be diagnosed with great accuracy by roentgenography. Their relative incidence is probably higher than is generally assumed. It has been reported at from 1 to 4 per cent of all gastric tumors. As benign gastric tumors cause few or no symptoms, they are likely to be overlooked even on roentgen examination and only those which are thought to be malignant or which produce marked symptoms are operated upon.

At the University of Minnesota Hospital 239 diagnoses of tumor of the stomach were made in a period of five years. Eighty-eight and seven-tenths per cent of the tumors were malignant and the rest were either entirely benign or benign neoplasms with malignant change. Examination of the postmortem material at the University of Minnesota showed that a benign tumor of the stomach or duodenum was present in 14 per cent of the cases of gastrointestinal lesions. The gastroduodenal ulcer ratio was considerably higher in the postmortem series than in the clinical series. Duodenal ulcer was found in only 24 per cent of the autopsy cases, but in 54 per cent of the clinical cases, and gastric ulcer in 18 per cent of the autopsy cases but only 8 per cent of the clinical cases. Periesophageal hernia was diagnosed by roentgen examination over 5 times as frequently as it was found at autopsy. The authors ascribe this fact to failure of the pathologist to search for or detect small dilatations of the esophageal hiatus. In 138 cases in which a diagnosis of gastric or duodenal tumor was made, more than 25 per cent of the tumors were benign, whereas malignant tumors were only 3 times as frequent as benign tumors.

Of chief importance in the clinical diagnosis of benign tumors of the stomach is the technique of the examination. Overfilling of the stomach will frequently obliterate the tumor. During roentgenoscopy, pressure on the stomach is often necessary. Heavy penetration of the stomach is of considerable importance as small defects from tumors of the anterior or posterior wall can be brought out thereby. Benign tumors may be confused with hypertrophied folds of mucous membrane. By demonstrating the mucosal outline, it is usually possible to show the variation from the normal in cases of tumor. Carcinoma is revealed by evidence of deep infiltration into the wall of the stomach with absence of peristalsis in the involved area and rigidity on manipulation with the palpating finger, immobility, irregu-

those of perforation of a primary ulcer—sudden violent pain in the epigastrium and marked rigidity of the abdominal walls. The pain and abdominal rigidity are most marked in the left upper quadrant over the site of the anastomosis. Vomiting is not constant, but the condition is always accompanied by anghal, pallor and bradycardia, and in nearly every case there is contraction of the cremasters and the dartos. Rectal examination reveals pain in the pouch of Douglas. There may be a tympanic zone above the liver or the liver dullness may be obliterated entirely. Roentgen examination may show a sickle of air below the diaphragm.

The author reviews the methods of operation that have been used in cases of perforation of postoperative peptic ulcer. From his own case and twenty-five cases collected from the literature he concludes that when the patient is in poor condition simple suture of the perforation may be used as a simple and easy method to be followed by radical operation later. The operation of choice is immediate resection of the stomach and the anastomotic loop. However the success of this operation depends upon the time that has elapsed since the perforation, the patient's age and general condition, the extent of the peritonitis, the local conditions, and the experience of the surgeon. To eliminate the danger of aspiration pneumonitis, the stomach should be evacuated with a sound before the operation. General anesthesia is to be preferred as satisfactory splanchnic anesthesia cannot be obtained in peritonitis. Local anesthesia should be reserved for cases in which simple suture is to be performed. *AUDREY GOSWAMI, M.D.*

Wolfer J. A.: The Surgical Management of Peptic Ulcer. *North. Am. Med.* 1936, 33, 5.

Wolfer is convinced that peptic ulcer is a localized manifestation of a constitutional condition, and that therefore therapy directed solely toward the ulcer is not scientifically correct and will not be followed by a high incidence of cure. According to his experience, a considerable percentage of patients subjected to resection of the greater part of the stomach and the first part of the duodenum are not cured. Many of them not only fail to gain weight and strength, but are subject to recurrent attacks of gastro-intestinal distress. It still remains to be determined to what degree their symptoms are secondary to the loss of the parts removed with resulting disturbance of the normal physiological processes and to what degree they are due to the disease.

There is a distinct ulcer status. Persons with such a status have evidences of gastro-intestinal disturbances long before the characteristic ulcer syndrome is manifested.

Surgery is indicated for duodenal ulcer in the following types of cases:

1. Those of recurrent or unyielding lesions which have failed to respond to medical therapy. This group should be divided into (a) those with fairly normal acid curves and motility, and (b) those with high acid curves and hypermotility.

2. Cases with repeated hemorrhage.
3. Cases with obstruction.
4. Cases of a progressive nature in which, despite medical treatment, excessive pain, vomiting, and bleeding occur.
5. Cases with perforation.

The surgical treatment of duodenal ulcer must be adapted to the requirements of the individual case. In cases in which the ulcer is not adherent to the pancreas, conservative therapy is reasonably effective, whereas in the cases of emotional individuals with hyperacidity and hypermotility gastro-enterostomy is contra-indicated because it is frequently followed by jejunal ulcer. For cases of the latter type a high subtotal gastrectomy such as the Polya operation is today regarded as the operation of choice.

Duodenal lesions with repeated hemorrhage often constitute a problem. In the cases of patients who have had several hemorrhages, operation should always be performed preferably in an interval between hemorrhages. The pathological findings vary. In some cases no open lesion can be found. As a rule subtotal gastrectomy should be done.

Perforated duodenal ulcers should be operated upon immediately as operation performed within the first five hours is almost always followed by recovery whereas every hour of delay after the first five hours increases the mortality and at the end of twenty-four hours the mortality approaches 100 per cent. The operation should be comparatively simple. The perforation should be brought into view, closed with a through-and-through suture, and inverted with a silk purse-string suture. Occasionally an area of induration surrounding the perforation will prevent secure closure. If under such conditions, the surgeon persists in trying to close the wound, more damage will be done, as the sutures tear through the friable tissues. It may be necessary to invert the entire ulcer-bearing area by means of a purse-string suture introduced well away from the site of the perforation. If the inverted mass occludes the lumen of the duodenum, gastro-enterostomy should be added. Immediately after the operation the head of the bed should be raised to favor gravitation down to the pelvis of any fluid that may be present in the peritoneal cavity. This is considered one of the most important aids in the prevention of subphrenic abscess following abdominal surgery.

The cases of gastric ulcer in which surgery is indicated are:

1. Those with perforation to the liver or pancreas.
2. Those of large or chronic ulcers in which malignancy is suspected.
3. Those of borborygm contraction.
4. Those of a progressive nature associated with excessive pain, vomiting, and bleeding.
5. Those with perforation.
6. Those with repeated hemorrhage.

As a general rule gastric lesions are treated by subtotal resection. In cases in which the patient has been starved because of the ulcer symptoms and

those in which the adequacy of the suture line is questionable, a complementary jejunostomy should be added to provide a means for immediate nourishment and to place the stomach at rest so that healing of the suture line may occur without danger of leakage.

The author discusses also the problems of ulcer cancer. According to his experience, the size of the lesion is of no great aid in determining its nature. Large spreading peptic ulcers of the stomach are encountered as frequently as small carcinomatous ulcers. The clinical history may be very misleading during the early stage of the disease. Roentgen findings are also often misleading or of no value. However there is little question that gastric symptoms appearing in an individual over forty years of age who has had no previous complaints is very suggestive of cancer. Since it is impossible to differentiate gastric ulcer from gastric carcinoma with certainty or to determine whether an ulcer will become cancerous, the only hope for cure lies in early resection.

The treatment of gastrojejunal ulcer is far from satisfactory. The only medical therapy bringing about decided relief is mucin therapy. As a rule patients with protracted severe symptoms are devalitized and starved and therefore poor surgical risks. Wolfer believes the procedure of choice for such patients is jejunostomy and jejunal feeding. By this means the pain will be relieved and the patient may be adequately nourished for a long period of time. Such treatment will permit the ulcer to heal so that a reconstructive operation may be performed later with relative safety.

Restoration of the continuity of the gastro-intestinal tract after gastro-enterostomy for duodenal ulcer is usually followed by prompt recurrence of the duodenal ulcer. Disconnecting the gastro-enterostomy, resection of the ulcer, and the establishment of a new gastro-enterostomy yields a cure in only 20 per cent of cases, whereas after wide resection and an anastomosis of the Polya type, the incidence of cure ranges from 60 to 70 per cent.

The treatment of a gastroduodenal fistula is surgical, but in the entire realm of surgery there is no other operation which is so time-consuming and difficult. The required procedure includes separation of the colon from the stomach with, in some cases, partial resection followed by anastomosis, separation of the jejunum from the stomach, excision of the jejunal ulcer, which may entail temporary jejunostomy and end-to-end jejunal anastomosis, and finally, gastrectomy with gastrojejunostomy.

In conclusion the author states that many poor, if not disastrous, results have been due to indiscriminate surgery or illogical operative procedures. Operations have been condemned because they have been performed when they were contra-indicated. This is true of gastro-enterostomy.

For the best results in cases of peptic ulcer cooperation between the internist and surgeon is essential. If each case is individualized and is studied from the viewpoint that peptic ulcer is the local manifestation

of a constitutional disease and if the disease is treated as a whole, fewer cases will reach the stage at which surgery is necessary. If the cases requiring surgery are further studied, it will be possible to find logical surgical procedures which will relieve the symptoms in a large number of them.

SAMUEL J. FOGELSON, M.D.

Rigler, L. G., and Ericksen, L. G. Benign Tumors of the Stomach. Observations on Their Incidence and Malignant Degeneration. *Radiology*, 1936, 26, 6.

Benign tumors of the stomach can be diagnosed with great accuracy by roentgenography. Their relative incidence is probably higher than is generally assumed. It has been reported at from 1 to 4 per cent of all gastric tumors. As benign gastric tumors cause few or no symptoms, they are likely to be overlooked even on roentgen examination and only those which are thought to be malignant or which produce marked symptoms are operated upon.

At the University of Minnesota Hospital 239 diagnoses of tumor of the stomach were made in a period of five years. Eighty-eight and seven-tenths per cent of the tumors were malignant and the rest were either entirely benign or benign neoplasms with malignant change. Examination of the postmortem material at the University of Minnesota showed that a benign tumor of the stomach or duodenum was present in 14 per cent of the cases of gastro-intestinal lesions. The gastroduodenal ulcer ratio was considerably higher in the postmortem series than in the clinical series. Duodenal ulcer was found in only 24 per cent of the autopsy cases, but in 54 per cent of the clinical cases, and gastric ulcer in 18 per cent of the autopsy cases but only 8 per cent of the clinical cases. Periesophageal hernia was diagnosed by roentgen examination over 5 times as frequently as it was found at autopsy. The authors ascribe this fact to failure of the pathologist to search for or detect small dilatations of the esophageal hiatus. In 138 cases in which a diagnosis of gastric or duodenal tumor was made, more than 25 per cent of the tumors were benign, whereas malignant tumors were only 3 times as frequent as benign tumors.

Of chief importance in the clinical diagnosis of benign tumors of the stomach is the technique of the examination. Overfilling of the stomach will frequently obliterate the tumor. During roentgenoscopy, pressure on the stomach is often necessary. Heavy penetration of the stomach is of considerable importance as small defects from tumors of the anterior or posterior wall can be brought out thereby. Benign tumors may be confused with hypertrophied folds of mucous membrane. By demonstrating the mucosal outline, it is usually possible to show the variation from the normal in cases of tumor. Carcinoma is revealed by evidence of deep infiltration into the wall of the stomach with absence of peristalsis in the involved area and rigidity on manipulation with the palpating finger, immobility, irregu-

larly lack of roundness lack of sharp demarcation of the defect and reduction of the size of the lumen.

Early diagnosis is of importance in cases of benign tumor of the stomach because of the symptoms which the neoplasm may produce and because of the possibility that the tumor may become cancerous. Malignant change in a previously benign tumor may be demonstrated by roentgen examination. However malignancy does not develop in every case. The involved portion of the stomach should be removed radically. If such radical removal is not done repeated X-ray examinations should be made at frequent intervals in order that the onset of malignancy may be detected at the earliest possible moment.

ATWOOD OGDEN, M D

Leinetti, F : Subcutaneous Rupture of the Herniated Intestine Following Contusion (Sulla rottura sottocutanea dell'intestino erniato da contusione). *Clin. chir.* 1935 11 975

The herniated intestine is naturally susceptible to trauma. Trauma causes various consequences within the hernial sac or the neighboring peritoneal cavity. Among the most serious sequelae of such trauma is rupture of the intestine. This is followed by peritonitis which at first is localized but subsequently involves the free peritoneal cavity if the ruptured intestine re-enters the abdomen.

The author reports the case of a patient operated upon because of abdominal infection following a trauma due to the kick of a horse in the inguinal region. The patient had had a hernia but no hernia was noted at the time of his admission to the hospital. At operation, a laceration of the intestine with surrounding peritonitis was found. It is probable that the injured portion of the intestine was in the hernial sac at the time of the trauma and re-entered the general peritoneal cavity subsequently. The laceration was sutured, a drain introduced into the peritoneal cavity and the abdominal wall closed. The patient made a good recovery.

Although this sequence of events is not common, it should be borne in mind whenever a patient with a hernia suffers a trauma in the region of the hernia. Such an injury is suggested by the rapid development of signs of peritoneal infection. Immediate operation is imperative.

A. LOUIS ROSE, M D

Crohn, B. B., and Rosenak, B. D : A Combined Form of Ileitis and Colitis. *J. Am. M. Ass.* 1936, 66 1

In 1933 Crohn and Rosenak reported fourteen cases of regional or terminal ileitis. All of the patients presented a granulomatous, ulcerating, or stenosing inflammation of the small intestine. The almost constant involvement of the terminal ileum, the non-specific type of granulomatous lesion, the tendency toward fistula formation, and the frequent tendency toward stenosis of the lumen of the ileum led to the inference that all of the variants seen at that time were manifestations of a purely localized and constant clinical complex and pathological

entity. Today the authors experience covers only operatively diagnosed cases of ileitis and it seems essential to recognize another less common form of terminal ileitis that is associated with an inflammatory and ulcerative colitis. Nine of the sixty patients with ileitis had colitis. The first case of the combined disease was reported in 1934 by Colt.

All of the authors' nine patients with ileitis and colitis were young persons. The outstanding clinical characteristics of the condition are pain and a mild diarrhea. At first the course may be either acute or fulminating, but eventually it assumes a chronic phase. In all cases the ileum and the colon are typically involved. In some, the colitis is apparently continuous with the ileitis. In others the colon involvement is patchy or segmental. The diagnosis rests on careful and accurate roentgenologic studies made with a barium meal and a barium enema. As a rule the right ascending colon up to the transverse colon and sometimes with the latter is involved, the distal colon being free from the disease. Occasionally spontaneous recovery of both lesions occurs. The ileitis is the dominating feature of the disease, its removal usually resulting in cure. A wide-tracking operation without removal of the diseased ileum is ineffectual. The brilliant surgical results seen after resection of primary regional ileitis may not always be duplicated in the more complicated coliform involvement of the ileum and colon. With greater experience and more watchful direction, early recognition and early resection may except in acute cases, yield the solution to an otherwise complicated and difficult problem. JOHN W. KUTNER, M D

Stelato, D : Experimental Research on Longitudinal and Transverse Plication of the Cecum and Ascending Colon (Ricerche sperimentali sulle plicature longitudinali e trasversali del colon cecocolon e del ceco). *Arch. ital. di chir.* 1935, 4 537

The author reports experiments he carried out on thirty-eight rabbits to determine the value of plicating the cecum and ascending colon in right colostic stasis as recommended by Parlayecchio in 1904. His findings and conclusions are summarized as follows:

1. Plication of the cecum and ascending colon did not interfere with the function of the bowel.
2. It did not shorten the lives of the animals.
3. The reduction in the size of the bowel remained more or less permanent.
4. Transverse plication produced less marked atrophy of the intestinal wall than longitudinal plication. This fact is probably explained by the interference with the blood supply of the bowel that is produced by longitudinal plication.
5. Transverse plication was followed by an increase in the rapidity of emptying of the intestinal contents.
6. Transverse plications not only act as valves, but give support to the longitudinal muscle contractions of the wall.

CARLO S. SCUDERI, M D

Hobler, L. L. Appendicitis *Ann Surg*, 1936, 103
86

A survey of published statistics reveals a wide variation in the mortality of appendicitis depending upon the methods by which the types of cases were classified and the variations in the treatment. Mortality rates based upon vital statistics universally show an increase in the past twenty years. The Metropolitan Life Insurance Company has found that the mortality of acute appendicitis rose from 10.6 per 100,000 in the period from 1911 to 1914 inclusive to 14.1 per 100,000 in the period from 1917 to 1930 inclusive, and estimates that in the United States there have been from 25,000 to 30,000 deaths annually from appendicitis in recent years as compared with from 16,000 to 18,000 twenty years ago. In England, the Registrar General's statistics show that between 1913 and 1923 the mortality rose from 69 to 74 per 100,000. It is emphasized that these statistics are based upon the total number of deaths per unit of population, not upon case reports, and therefore do not indicate the incidence of the disease.

In 1934, Walker compiled comparative statistics from the literature for the periods from 1900 to 1915 and from 1916 to 1932. He found that in the latter period the general operative mortality was about 2.5 per cent less than in the first period.

Hobler reviews 4,791 consecutive cases in which appendectomy was performed at the Methodist Episcopal Hospital, Brooklyn, in the period from 1924 to 1934, inclusive. These included 2,260 cases of acute appendicitis. He analyzes these cases in their various aspects, briefly summarizing the recent literature with regard to the points discussed.

Forty-eight per cent of the patients were males and 52 per cent females. Sixty-one per cent of the deaths were those of males and 52 per cent those of females. The patients ranged in age from twelve months to eighty years. Twenty per cent were between sixteen and twenty years and 72 per cent between six and thirty years. The average mortality of the latter group was 1.8 per cent. Forty-four per cent of the total number of deaths were those of patients under eleven years or over fifty-five years of age, yet these patients constituted only 18 per cent of the total number.

In 2,130 cases the appendectomy was performed under general inhalation anesthesia induced with nitrous oxide oxygen and ether. Spinal anesthesia was used in 111 cases in which operation was performed in the last four years. There were no deaths or apparent complications due to this type of anesthesia in these cases. In the cases of acutely ill patients, especially elderly persons, spinal anesthesia has been found markedly superior to general inhalation anesthesia. Local anesthesia induced with novocain was used in 12 cases, avertin basal anesthesia in 3, and amytal basal anesthesia in 4.

The small McBurney incision was employed in 71 per cent of the cases, the right rectus incision in 28 per cent, and a midline incision in 1 per cent.

The 2 chief preventable factors in the mortality of acute appendicitis are delay of operation and the use of cathartics. The public must be taught that the ice bag has no influence on disease, and that in cases of abdominal pain the administration of cathartics may be dangerous.

Among the postoperative complications in the reviewed cases the following are noteworthy:

Undrained cases the formation of an abscess which necessitated secondary drainage, 4 cases, general peritonitis, 2 cases.

Drained cases the formation of an abscess necessitating secondary drainage, 9 cases, fistula, 8 cases, and phlebitis, 10 cases. ELLA M. SALMONSEN

Schullinger, R. N. Acute Appendicitis and Associated Lesions. Some Observations on the Mortality. *Arch Surg*, 1936, 32, 65.

In a study of acute appendicitis at the Presbyterian Hospital, New York, over an eighteen-year period prior to January 1, 1934, it was discovered that a considerable number of the case records were classified in improper subgroups. While these discrepancies change the mortality rate in the five main groups they do not affect the actual number of deaths from acute appendicitis of all types. In the reviewed period the total mortality of acute appendicitis was 5.08 per cent, and the total death rate in each of the five groups was as follows: acute appendicitis, 0.59 per cent, acute appendicitis with acute local peritonitis, 1.0 per cent, acute appendicitis with acute diffuse (diffusing, spreading) peritonitis, 17.02 per cent, and acute appendicitis with progressive fibrinopurulent peritonitis, 88 per cent.

Each of the five types of cases of appendicitis is discussed in detail with an analysis of doubtful cases, a comparison of the mortality rates reported in the literature, tables, and graphs. Measures to lower the mortality in all types are suggested. The use of spinal anesthesia, avertin with nitrous oxide, or local anesthesia seems highly desirable. The importance of the prevention of injury to the adjacent viscera and of gentleness in the manipulation of the appendix to avoid rupturing it is emphasized. When difficulty is experienced in removing the appendix, it may be wiser simply to insert a drain down to it, because if removal is attempted there may be considerable damage to the stump of the meso-appendix and the retroperitoneal tissues affording a means of extension of the infection and possibly producing pylophlebitis, retroperitoneal cellulitis, phlebitis of the retroperitoneal veins, or septicemia. If enterostomy is to be done, it should be performed early and not as a last resort. The administration of large amounts of fluids, repeated small blood transfusions, and rest should be included in the supportive treatment.

In cases with peritoneal abscess the attempt should be made to drain the abscess with the least possible trauma and by the simplest and quickest operative procedure. It is probably better not to approximate the subcutaneous tissues and the skin,

these wounds should not be sewed tightly. Irrigation of the cavity with a surgical solution of chlorinated soda earlier than five days after the operation should be avoided because of the danger of disrupting the protective barriers and thereby causing and spread of the infection into the general peritoneal cavity.

In cases with spreading peritonitis and generalized fibrinopurulent peritonitis, thoughtfully planned postoperative measures directed particularly against shock, distention, paralytic ileus, and toxemia are essential to lower the mortality rate. As the general surgical principles are the same in all groups of cases they merit consideration by the surgeon who is anxious to use every possible means of reducing the mortality in the various groups.

The public should be taught that in cases of acute appendicitis in which operation is performed early by a competent surgeon at a well-equipped hospital the mortality is extremely low. Factors increasing the mortality are fear of hospitals and operations, the use of cathartics for abdominal cramps "upset stomach" or "indigestion," delay of consultation by the physician in doubtful cases, use of morphine and "freezing of the appendix until life is jeopardized and the "occasional operator" who so frequently is unable to cope with a difficult technical situation.

The curve of the five year average mortality in all types of cases of acute appendicitis shows a moderate general decrease. The five-year average mortality curves for cases of Groups 1 and 2 show a decrease, but those of cases of Groups 3 and 4 show a definite alarming increase.

JOSEPH E. KILPATRICK, M.D.

Leonard, Z. D., and Derow, S.: Mortality Factors in Acute Appendicitis. *New England J Med* 1936, 214, 52.

In an effort to determine the factors influencing the mortality of acute appendicitis, the authors made a study of 1,000 cases of that condition operated upon at the Newton Hospital, Newton, Massachusetts, in the period from 1923 to 1935. In these cases there were 47 deaths, the mortality being therefore 4.7 per cent. Five hundred and forty of the patients were males and 460 were females. In the cases of males the mortality was 4.6 per cent (25 deaths) and in those of females, 4.8 per cent (22 deaths).

Fifty-seven per cent of the patients were in the second and third decades of life. The mortality was lowest in this group (2 per cent). In the cases of patients under five years of age it was relatively high (8 per cent) and in those of patients beyond the fourth decade of life it showed a steady rise.

The incidence of perforation in the different age groups paralleled the death rate. In 74 per cent of the cases of patients under five years of age free pus was found at operation. Fifty per cent of the patients over fifty years of age had peritonitis or abscess formation.

Eighty-four per cent of the patients, 5 of whom had peritonitis, were operated upon within ten hours after the onset of symptoms. In this group there was no mortality.

In 48 per cent of the cases with a history of enteritis the appendix was found ruptured at the time of operation. Fifteen per cent of the total number of deaths were those of patients who had taken cathartics.

Nitrous oxide and local anesthesia were used in the cases of patients who were gravely ill at the time of operation, and spinal anesthesia was employed in those of some elderly patients with pulmonary complications. In 2 cases death definitely attributable to spinal anesthesia occurred on the operating table. Nitrous oxygen ether anesthesia in itself was not the cause of any of the deaths.

In 1 case there was a strangulated hernia and the acutely inflamed appendix was removed through a right inguinal incision. The inoperability of a mid-line incision for removal of the appendix is apparent. However, such an incision was used in the cases of a few female patients presenting a question of dyslexia. In the 65 cases in which the McBurney incision was employed the mortality was low (5 per cent).

Four hundred and eighty-six cases were drained and 43 of the deaths occurred in this group. The stump was inverted in 582 cases. No relation between inversion of the stump and mortality could be ascertained.

The author concludes that the mortality in average cases of acute appendicitis is due, not to a single factor but to a combination of factors.

ELLA M. SALMONSON

Bosse, H.: Tumors of the Appendix (Tumoren der Appendix). *Zentralbl f Chir* 1935, 7, 1639.

Tumors of the appendix are usually accidental discoveries at operation or autopsy. Cysts, if included in this group, are the most numerous. In a large number of autopsies the incidence of cysts of the appendix is found to range from 0.3 to 0.6 per cent. According to Robbert, such cysts are the sequelae of inflammation which obstructs the evacuation of the appendix. This obstruction leads to the formation of gelatinous masses which may break through the wall of the appendix and form a peritoneal pseudomyoma.

Next in frequency are carcinomas of the appendix. These are usually small tumors, regarded by many as true carcinomas and by some as basal-cell proliferations of the type described by Krosenpecher. Clinically they are benign. They do not form metastases or recur.

Still rarer are the mesodermal tumors. Dandy has reported in each five sarcomas, six fibromyxomas, two myxomas, one fibroma, and one fibromyxoma.

Hansmann described a peculiar disease picture. At two autopsies he found in the appendix a number of spherical formations of the size of carrier globules. He called this phenomenon "myxoglobulosis."

Boese operated upon a patient with a tumor of the appendix, but does not state definitely whether it was a pseudomyxoma or myxoglobulosis

(PLENZ) J DANIEL WILLEMS, M D

Lichtenstein, L Rectal Stricture *Am J Surg*, 1936, 31 111

In a four-month period, 154 cases of lymphogranuloma inguinale were observed at the New Orleans Charity Hospital. This number indicates that the disease is more prevalent in general hospitals with a large number of negro patients than has been suspected heretofore. The condition is predominantly a disease of the negro race, but the white race is by no means exempt.

In this article the author discusses the 58 cases of inflammatory rectal stricture which were included in the series mentioned. In 55 of this group the Frei reaction was positive, in 2 equivocal, and in 1 negative. Fifty-seven of the 58 patients were females. Fifty-four of the females and the 1 male were negroes. The patients ranged in age from twenty-two to sixty years. Their average age was thirty-four years. The Wassermann reaction was positive in 10 cases, negative in 37, and undetermined in 11.

The evidence indicating that lymphogranuloma inguinale is the etiological factor in nearly all cases of rectal stricture is summarized briefly, and the pathological features, symptoms, diagnosis, treatment, and associated lesions of rectal stricture are discussed. Five cases of rectal stricture observed at autopsy are reported. Three of these cases were observed clinically and in the author's opinion are the first recorded cases of rectal stricture associated with lymphogranuloma inguinale which came to autopsy, diagnosed as such. The findings in all 5 cases clearly indicated that the terminal stage of involvement of the rectum by the virus of lymphogranuloma inguinale is the pathological entity of chronic ulcerative stenosing proctitis and periproctitis, the etiology of which has hitherto been obscure. In 2 of the cases positive Frei reactions were observed during life. The author concludes that these cases, which, so far as he knows, are the first of the sort to be recorded, furnish the missing link between the clinical entity of rectal stricture due to lymphogranuloma inguinale and the aforementioned pathological entity.

CARL R. STEINKE, M D

Pennoyer, G P. Benign Stricture of the Rectum *Am J Surg*, 1936, 31 127

This article is a report of twenty-two cases studied and followed in the Out-Patient Department of the Roosevelt Hospital, New York City, during the last three years. Seventeen of the patients were colored women with an average age of thirty-five years, three were white women and two were men. In not one of the cases was it possible to prove that the etiological factor was gonorrhea, syphilis, or tuberculosis. Three of the patients had a 4+ Wassermann reaction and two a 1+ or 2+ reaction but antiluetic treatment and iodides had no effect

on the stricture in any case. Six of the twenty women gave a history of previous pelvic disturbance or of treatment which might have been given for a chronic gonorrheal infection, but in only two of these six was the history of gonorrhea proved.

Although absolute proof is lacking Pennoyer believes that nearly all, if not all, of this series of cases were examples of the fourth venereal disease, lymphogranuloma inguinale. Many have never heard of this infection or confuse it with granuloma inguinale, which is an entirely different and unrelated disease. The author reviews its principal clinical features and describes the Frei test and its antigen preparation.

Grace, of the New York Hospital staff, has been successful in transmitting the disease through many generations of mice by intracranial injection of the virus. Of the cases reported by the author, 81 per cent showed a positive Frei test.

It appears to Pennoyer that lymphogranuloma inguinale is the most common cause of benign stricture of the rectum although this has not been proved.

In the more severe cases a permanent colostomy is necessary, but most patients can be kept comfortable for long periods by simple local dilatation. The dilatation must be done carefully and not beyond the minimum lumen required to maintain satisfactory bowel movements.

CARL R. STEINKE, M D

LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

Kerr, A B, and Lendrum, A C. A Chloride-Secreting Papilloma in the Gall Bladder *Brit J Surg*, 1936, 23 615

The patient whose case is reported, a man sixty-four years of age, gave a history of increasing constipation for ten weeks and swelling of the right upper abdomen for three weeks, associated with anorexia, flatulence, and loss of weight and strength. Palpation revealed a smooth firm mass extending from the costal margin to just below the intercostal line, and from the right flank to the middle line. Cholecystotomy was done with drainage of 20 oz of clear fluid 10 oz of thick dirty fluid, and eight opalescent stones with bile pigment and calcium centers and an outer coating of cholesterol. Cholecystectomy appeared to be contra-indicated because of the patient's condition. Following the cholecystotomy large amounts of fluid poured out of the wound. In the twenty-four hours immediately after the operation, 38 oz of thin fluid drained from the gall bladder. Thereafter the drainage continued as a clear colorless watery fluid. During the third day its amount reached 60 oz in twenty-four hours. The urine contained practically no chlorides. The fluid from the wound contained sodium chloride at a concentration considerably higher than that of the blood plasma. Dehydration and chloride depletion resulted within five days and were successfully treated

by the intravenous administration of saline solution. Later the gall bladder was removed, but the patient died.

Examination of the gall bladder disclosed a crab flower like growth 3 cm. high, in the region of the neck. The tumor consisted of three main masses and numerous closely adjacent polyps. On section, the tumor was found to be a simple papilloma of the gall bladder covered by epithelium which had the essential characteristics of intestinal epithelium, containing large numbers of Paneth cells, some goblet cells, and a few enterochromaffin cells. The source of the fluid was considered to be the intestinal epithelium. The most striking fact was that this tumor, not 3 in. in diameter concentrated sodium chloride from the blood plasma and poured it out at such a rate as to produce gross dehydration and chloride deficiency. The specialized nature of the cells in the papilloma is believed to show that the tumor arose in an area of heterotopic intestinal epithelium.

The authors briefly review papillomas of the gall bladder reported in the literature. It is concluded that these lesions fall into three groups: (1) simple villous papillomas, (2) simple villous papillomas with translocation and (3) villous papillomas with malignant transformation. The Paneth cell, goblet cell, and enterochromaffin cell and their staining reactions and relationship are discussed.

HAROLD C. OLSBERG, M.D.

MISCELLANEOUS

Barricla, L., Fort, V., and Lombert, A.: An Anatomical and Clinical Study of Four Cases of Pylephlebitis (Considérations anatomiques et cliniques sur quatre cas de pylephlébite). *Ann. d'anal. path.* 935: 93.

The authors report four cases of pylephlebitis which were seen within a short time. All were fatal. In the fourth case the patient died soon after his admission to the hospital in a condition of generalized infection and no clinical history was obtainable.

The classical syndrome of portal hypertension accompanied by pain was not observed in any of these cases. In two cases there was suppuration in the gall bladder in one case a cancerous ulcer of the stomach and in one case pyonephrosis. These con-

ditions were complicated by suppuration of the portal vein with more or less serious lesions of its intrahepatic and extrahepatic branches. In the first case the suppuration had extended to all the intrahepatic branches and there were numerous abscesses in the parenchyma of the liver. In the third case the infection was localized in the intrahepatic part of the vein, and in the fourth case the process had brought about obliteration of the splenic vein, its point of origin, and had then extended to the intrahepatic branches as in the third case. In the second case only the mesenteric plexuses were affected. In the first and third cases there was also a generalized peritonitis.

The first case was an atypical case of kiliakia of the common duct with absolutely no pain even on deep palpation. Chills occurred after the disappearance of the icterus, but there were no other signs of obstruction. Operation was delayed because there was no evidence of focal infection. Subsequent improvement seemed to justify the medical treatment, particularly in view of the good results of duodenal intubation. Later collapse occurred, apparently from perforation of the stomach, but after this improvement was again evident. Twelve days later there were signs of perforation of the gall bladder and death resulted from generalized peritonitis.

The second case was simpler. An acute cholecystitis not operated on at once seemed to be becoming cured when signs of general peritonitis developed. In the third case a history of malaria and tuberculous led to an erroneous diagnosis.

Very few cases of pylephlebitis have been reported, but the authors are inclined to think that if careful histological examinations of the portal vein were made many more would be recognized.

Pylephlebitis is usually fatal. So-called cases of this condition in which recovery results after temporary ascites are not cases of pylephlebitis but cases of pyothrombosis. The only treatment which might prevent a fatal outcome is early operation. That is what should have been done in the cases reported in this article, but because of the evident improvement it would have been difficult to induce the patients to accept operation. However, even operation offers very little chance of success.

ARTHUR GOMM MORRAN, M.D.

GYNECOLOGY

UTERUS

Jeanneney, G. Cysts of the Uterus (Kystes de l'utérus) *J de méd de Bordeaux*, 1935, 112 815

True cysts of the uterus are lined by a secreting epithelium. False cysts are merely cavities in tumors which are filled with blood or tissue debris and are not lined by epithelium. The latter are frequently seen in fibromas. Their importance lies in the fact that they may be precursors of malignant degeneration.

True cysts may be hydatid cysts, which are rare, non-congenital cysts, or congenital cysts developing from the wolffian, muellerian, or malpighian ducts. Diagrammatic sketches of these various types of cyst are presented.

Two cases are reported. In the first, that of a woman thirty-two years old, there was a large fibroma of the uterus. Subtotal hysterectomy was performed and the tumor, part of which was softened, was removed. When the tumor was opened a cavity containing bloody fluid was found. Microscopic examination was not made. A year later cachexia and pulmonary disturbance developed and the patient died. Apparently there had been sarcomatous degeneration of the uterine tumor which might have been discovered if the neoplasm had been examined microscopically. This case shows the importance of microscopic examination of cysts discovered in the uterus.

In the second case, that of a woman forty-five years of age, total hysterectomy was performed for a fibroma of the uterus. The tumor contained a cyst filled with clear fluid. Microscopic examination showed the cyst to be lined with high cylindrical epithelium. It was probably a cyst of muellerian origin. In this case microscopic examination showed the tumor to be benign.

AUDREY GOSS MORGAN, M D

ADNEXAL AND PERIUTERINE CONDITIONS

Charbonnier, A., and Brandt, H. A Case of Traumatic Torsion of Normal Adnexa (Un cas de torsion traumatique des annexes saines) *Rev méd de la Suisse Rom.*, 1935, p 913

The case reported was that of a virgin fifteen years of age with no pathological history. Menstruation had begun a year before, and the last period had ended fifteen days before, the accident. The patient fell at the top of a stairway and slid to the floor below, striking her pelvis on each step. She lost consciousness and on regaining it felt intense pain in the pelvis and right thigh. She continued her school work for three and a half hours, but was then obliged to go home and to bed. The next morning

she had intense pain in the right groin and thigh which came on in violent attacks and obliged her to lie with her thighs flexed against her abdomen. During the course of the morning she had two or three attacks lasting about twenty minutes each. In the afternoon she had pain in the lower part of the abdomen irradiating into the right thigh.

Rectal examination disclosed a painful mass in the right cul-de-sac. The patient was nauseated throughout the day, but in the evening felt better. During the night she had an attack of severe pain with vomiting. The next day at noon she had a violent attack for which the authors were called. The patient lay on her right side with her thighs flexed against her abdomen. Her facial expression showed great suffering. Her temperature was 37.8 degrees C and her pulse 100. The abdomen was sensitive but not rigid. The right iliac fossa was slightly painful. MacBurney's point was negative. There was no appreciable meteorism. Intestinal peristalsis was very active. On rectal examination the cervix was found to be painful on mobilization. Behind it there was a hard, nodular mass which was extremely painful. Palpation of this mass caused rigidity of the abdomen. The patient was nauseated. A diagnosis of either post-traumatic lesions of the adnexa or pelvic appendicitis was made.

Laparotomy performed forty-eight hours after the accident disclosed serohemorrhagic fluid in the intestine and twisting of all of the right adnexa 90 degrees in the direction of the hands of a watch. The ovary was enormous, bluish, and infarcted, and the tube was dilated and filled with blood. The infundibulopelvic ligament and mesosalpinx were infiltrated. The left adnexa were normal. A right adnexectomy and appendectomy were followed by recovery.

Authentic cases of torsion of normal adnexa are rare. The authors were able to find records of only five besides their own in which trauma was given as the cause of the torsion. They present brief abstracts of these.

The diagnosis can be made in post-traumatic cases from pelvic pain coming on suddenly in violent attacks with irradiation into the sacrolumbar and crural regions, sometimes accompanied by agitation, more or less marked signs of pelvic peritonitis, and the demonstration on rectal or vaginal examination of a movable nodular mass, extremely painful to the touch, beside or behind the uterus. Pathological examination must show absence of pregnancy, inflammation, cysts, and neoplasms and the presence of suffusion of blood or an infarct due to the torsion. Operation is indicated. Removal of the affected organs brings about recovery.

AUDREY GOSS MORGAN, M D

Lorenzetti, F.: Reflections on the Etiology and Therapy of the Scleromicrocystic Ovary. Cause and Effect Relationships to Sterility (*Riflessioni sul problema genetico e terapeutico dell'ovario scleromicrocistico. Rapporti di causa ed effetto con la sterilità*). *Ginecologia*, 1935, 1, 1904.

The author presents a clinical study of twenty-five patients with scleromicrocystic ovaries coming under his observation in 1935 and 1934 at the University of Turin. The patients ranged in age from twenty-one to thirty-eight years and in parity from nulliparity to multiparity. The condition was bilateral in eight, involved only the right ovary in thirteen, and involved only the left ovary in four.

The surgical treatment consisted of a wedge-shaped excision through the long axis of the ovary along the free border. Bilateral wedge excisions were done in all cases with bilateral hyalovment and unilateral excisions in the rest.

In nine cases the condition was associated with appendicitis in eight, with salpingitis in nine with retroversion of the uterus in five with adhesions in two with pelvic varicocele and in one with fibromyomas.

Three of the eight bilateral and five of the unilateral resections were followed by pregnancy. One of the patients has since become pregnant a second time.

Scleromicrocystic degeneration of the ovary has been ascribed to infections such as typhillitis, appendicitis, tuberculous infection, malaria, and rheumatic fever to constitutional conditions, such as chlorosis and habitus hypoplasticus and to endocrine disturbances notably hyperparathyroidism. From the frequency of associated appendicitis and the greater incidence of the scleromicrocystic changes in the right ovary than in the left in his cases the author concludes that typhillitis and appendicitis are probably the most frequent causes.

OSCAR C. FINOLA, M.D.

Celestano, P.: Are There Primary Krakenberg Tumors? (*Esistono tumori di Krakenberg primitivi*). *Arch. J. Anat. Anat.* 1935, 43, 731.

In a review of the literature Celestano points out that, according to the findings of recent investigations, Krakenberg tumors of the ovary are not primary as was originally believed, but always secondary to certain carcinomas of the gastro-intestinal tract.

He reports a case of apparently primary ovarian tumor which after operation was proved to be secondary. The patient was a woman twenty-four years old who shortly after her marriage, noticed suddenly a yellowish-white vaginal discharge accompanied by pain in the right iliac fossa. Menstruation then became irregular and menorrhagic in character and associated with pain in the iliac fossa and lumbo-sacral region. Following the spontaneous abortion of a two months pregnancy a severe hemorrhage occurred which was stopped by curettage of the uterus.

Physical examination revealed in the right lower abdominal quadrant a hard, ovoid tumor mass about the size of a full-term fetal head. This mass was not very mobile and had a regular surface.

At laparotomy the mass was removed together with the uterus and the adnexa and with another similar tumor mass about the size of a hen's egg which was found on the left side. The patient made an uneventful recovery and was apparently in good health for seven months. She then suddenly developed lancinating pains in the epigastric region, began to vomit, and became unable to ingest food. Death occurred four weeks after the onset of the gastro-intestinal symptoms.

Gross examination of the specimens revealed grayish-white, encapsulated tumor masses of fibrous consistency. The cut surfaces presented small cyst-like cavities containing a gelatinous substance.

The histological picture was identical with that described by Krakenberg. It showed the typical signet ring type of cell, the cytoplasm of which had undergone mucoid degeneration. Some areas were acellular and occupied by necrotic material.

The author believes that, without doubt, the primary tumor was in the stomach, but remained clinically undiagnosed because of its insidious onset and slow course.

RICHARD E. JONES

EXTERNAL GENITALIA

Pittman, L. E.: Vagino-vaginal Fistula. *Am. J. Obst. & Gynec.* 1935, 31, 316.

A review of 10,000 consecutive gynecological and obstetrical histories disclosed to vagino-vaginal fistula. A vagino-vaginal fistula therefore occurred in 1 of every 1,000 cases. In 1 case the fistula resulted from an obstetrical cause (vaginal cross-section) and in 5 cases was due to a surgical cause.

Twenty-seven operations were necessary to close the 10 fistulae. Of these 6 were performed by either surgeons and 19 by Phyllis. The largest number of operations on 1 patient was 6, and the smallest number 1.

Nine of the fistulae were closed through the vagina and 1 was closed by a suprapubic extraperitoneal operation. No fistula was closed by the suprapubic intraperitoneal method, which was used 4 times. The author was successful in closing 9 of the fistulae. The tenth was closed by another surgeon after he had failed at a previous operation. The various operative methods are discussed and the 10 cases are reported in detail. EDWARD L. CORRELL, M.D.

MISCELLANEOUS

Atkinson, A. J., and Ivy, A. G.: Menstrual Edema: The Report of a Case Controlled by X-rays But Not by Theloid or Theloidin. *J. Am. M. Ass.* 1935, 66, 215.

The case reported by the authors was under observation over a year during which three certain chemical studies of the blood were made.

Because of a lowered basal metabolic rate, desiccated thyroid was given. This raised the basal rate to normal, but did not influence the edema.

The gonadotropic principle from pregnancy urine was slightly effective in reducing the edema.

The administration of emmenin orally resulted in complete disappearance of the edema, including that which persisted between the menstrual periods.

Since emmenin is believed to be a hydrolyzable compound of theolol, it appeared that theolol should be as effective as emmenin. However, the edema was not influenced when theolol was given orally for one month or when it was administered hypodermically.

The blood lipids were not significantly or strikingly influenced either during treatment or when treatment was not given. Emmenin caused subsidence of the swelling also in the cases of two other patients with a similar history of premenstrual edema.

T. FLOYD BELL, M.D.

Moricard, R., and Villa, J. On the Existence of Two Maxima in the Urinary Elimination of Mitosin Coinciding Respectively with the Meiosis of Menstruation (De l'existence de deux maxima dans l'élimination urinaire de mitosine coïncidant respectivement avec la méiose de la menstruation) *Bull. Soc. d'obst. et de gynec. de Par.*, 1935, 24, 619.

Having demonstrated follicular development in immature mice following the injection of female urine in doses corresponding to 100 c.c. of urine, the authors attempted to ascertain whether there is a cycle in the elimination of mitosine under physiological conditions. The experiments undertaken for this purpose revealed two maxima in the elimination of mitosine, one in the intermenstruum, about the tenth day following menstruation, and the other during the period of menstruation.

It is known that ovulation occurs from about the twelfth to fifteenth day of the intermenstruum and is preceded by chromatic reduction or meiosis. The authors suggest that the increased elimination of mitosine during the intermenstrual period may be related to the onset of oocyte maturation as represented by the first mitosis of maturation followed by ovulation, which mitosis constitutes the fundamental stage of meiosis. "Meiosis" is the term applied to the ensemble of nuclear phenomena determining chromatic reduction. In the rabbit, the primary mitosis of maturation is produced by coitus. An injection of mitosine will produce similar phenomena seven hours following the injection. It is clear that this must be the effect of a substance contained in the follicular fluid. This function of the follicular fluid is known as its "meiogenic function." The basic relation between pituitary and ovarian function is the appearance of the radial vacuoma followed by the first reducing mitosis. Although the radial vacuoma have never been demonstrated in women, histological studies of the granulosa cells and lutein cells render its existence very probable.

In discussions of the pituitary-ovarian relations, follicular development and luteinization have been stressed, while meiosis has been usually ignored. The follicular fluid has not an estrogenic function but a meiogenic function dependent upon the presence of mitosine. During the period of onset of meiosis in the female there occurs an increased elimination of mitosine in the urine. Mitosines are hormonal substances originating in the anterior lobe of the pituitary gland or elsewhere and capable of producing mitoses in the germ and soma. Menstruation does not seem to be dependent solely upon a diminution of ovarian secretion, it may be due to an increased urinary elimination of mitosine. The quantitative urinary elimination of hormone is no indication of the secretory activity of an endocrine parenchyma. It is in the receptor organ that such activity must be measured, and the receptivity of the tissues affected must not be changed by physiological or pathological conditions.

EDITH SCHAECHTE MOORE

Cattell, R. B., and Swinton, N. W. Endometriosis. *New England J. Med.*, 1936, 214, 341.

Cases of endometriosis with endometriomas in all pelvic organs and in many other localities have been reported. Of a series of forty-three cases, implants were found in the ovaries in twenty-six, in the uterus in nine, in the rectovaginal septum in four, and in the round ligament, intestinal wall, fallopian tube, an abdominal scar, the appendix, and the peritoneum in one case each.

The duration of the symptoms ranged from thirty-six hours to ten years. Acquired dysmenorrhea, pelvic and low abdominal pain, abnormal menstruation, backache, leucorrhea and a low abdominal tumor were the principal complaints.

In the reviewed cases the treatment depended upon the age of the patient. Women near the menopause were treated radically and younger women conservatively. There was no operative mortality.

GEORGE A. COLLETT, M.D.

Marchese, E. Calcium-Quinine Therapy in Inflammations of the Female Genital Organs (La terapia calciochinina nelle flogosi dell'apparato genitale femminile) *Clin. ostet.*, 1935, 37, 730.

The author reports on twenty cases of acute and subacute inflammation of the female genital organs which were treated with a preparation composed of a solution of quinine gluconate with 10 per cent calcium gluconate.

Two of the patients were suffering from puerperal infection, three from postabortive infection, one from postoperative pelvic infection, five from pelvic peritonitis, and nine, from bilateral salpingitis. The calcium-quinine preparation was given by intramuscular and intravenous injection in doses ranging from four to seven injections of 5 c.c. each.

The treatment resulted in a rapid and at times precipitate decline in the temperature and complete or almost complete resolution of the inflammatory

process. It was particularly beneficial in the acute cases. An untoward reaction occurred in only two cases and was transitory. It consisted of a feeling of faintness, tachycardia, suffocation, and nausea during the injection. GEORGE C. FRODA, M.D.

Pellonien, E.: The Occurrence and Treatment of Vaginal Fistulas in Diseases of the Female Genitalia (Ueber Vorkommen und Behandlung der Organfisteln bei weiblichen Geschlechtskrankungen). *Acta Soc. med. Fennicae Scandinavica*, 1935 31 Fasc. 1.

This article is based on eighty cases of organic fistula associated with disease of the female genitalia which were treated during the period from 1895 to 1919 at Engström's Clinic and during the period from 1902 to 1933 at the Gynecological Clinic of the University of Helsingfors. Thirty-two of the fistulas occurred spontaneously; twenty-seven were so-called lesion fistulas related to an operation; sixteen were postoperative fistulas, and five were combined lesion fistulas and postoperative fistulas. In the majority of the cases the fistula had only one opening but in many two or three, and in one four openings were found.

The author first discusses the frequency, etiological factors, symptoms, diagnosis, and conservative treatment of such fistulas. He emphasizes the great importance of conservative treatment, especially systemic resection therapy in relation to later operative treatment and the end results.

He next discusses the operative treatment. In the reviewed cases the results were poorest in cases in which the fistula was left unclosed because of technical difficulties or by inadvertence, or the procedure was limited to suture of the fistula. In those in which various plastic methods, such as fixation of the fistula region to the abdominal wall, the peritonium of the lateral ligament or the surrounding tissues, or suture of the uterus, were used to strengthen the suture of the fistula and proper drainage was established the results were better.

The best results are obtained when the fistula is closed in two or three layers by careful incision with No. 0 catgut and continuous suture. In cases of fistula of the small intestine peritonization of the sutured region and the rough surfaces of the small intestine should be done; the intestine then being left free in the abdominal cavity. In fistulas of the cecum, large intestine, rectum, and bladder the region of the fistula suture should be directed toward the pelvic cavity. Complete isolation of the abdominal and pelvic cavities, removal of inflamed organs, and peritonization of the rough surfaces left by the liberation of adhesions render drainage through the abdominal wall unnecessary. The pelvic cavity may be drained by means of an ear drain introduced through the cervix or through a perforation of the posterior wall of the cervix or the posterior vault of the vagina.

The last mentioned method has been employed routinely in the author's cases since 1921. Peritonization has been done ten times for fistula of the

small intestine and three times to cover rough surfaces. The sutured region was directed toward the pelvic cavity in two cases of fistula of the cecum, six of fistula of the large intestine, fifteen of fistula of the rectum, and two of fistula of the bladder. The isolation and drainage of the fistulas being performed according to the methods described. Recovery after the operation was universal. Death occurred in only two cases. In one of these it was due to cardiac failure, and in the other to chlorocephaloma.

Turunen, A. O.: Clinical-Experimental and Histological Studies of the Healing of Abdominal Incisions for Gynecological Laparotomies (Klinisch-experimentelle und histologische Untersuchungen über die Heilung der Bauchdeckenschnitte bei gynäkologischen Laparotomien). *Acta Soc. med. Fennicae Scandinavica*, 1935 31 Fasc. 1.

The author first reports the findings of a clinical study made in 270 cases of laparotomy to determine whether better healing of the incision is obtained with a 5 layer suture of catgut and a suitable incision technique than with the 3 layer or 4-layer suture (catgut silk, and tension sutures) used formerly under the same conditions.

It was found that when the 5-layer method was employed the incidence of non-infectious wound complications was 3.0 per cent whereas with the method previously used it was 7.3 per cent; the incidence of suppuration of the wound was 5.0 per cent whereas formerly it was 11.5 per cent; and dehiscence of the wound occurred in no case whereas with the previously used method its incidence was 0.25 per cent.

The end-results were also considerably better, a perfect scar being obtained in 77.6 per cent of the cases whereas with the formerly used method it was obtained in only 57.8 per cent; the incidence of pain due to the scar was only 0.3 per cent whereas formerly it was 11.0 per cent; and the incidence of incisional hernia was only 1.1 per cent whereas formerly it was 5.6 per cent. The incidence of cicatricial hypertrophy and keloid formation was 2.4 per cent, and that of pigmentation 6.0 per cent. The incidence of endometrioses and ossifications was not recorded.

From these findings it may be concluded that No. 0 to 3 catgut without the use of silk or other supplements is the most suitable material for the suturing of laparotomy incisions; that the use of silk and tension sutures is unnecessary if not even dangerous; and that postoperative dehiscence of the wound is to be attributed chiefly to an unsuitable or carelessly carried out closure of the wound, especially by the so-called interrupted peritoneal suture or tearing caused by it. The appearance of the scar, the occurrence of incisional hernia, and the formation of adhesions to the scar are likewise dependent to a great extent on the suture technique.

It was found also that for gynecological laparotomy the midline incision is more suitable than the Pfannenstiel incision. When the midline incision is

used, the incidence of disturbances of healing is reduced especially in infectious cases, and scar pain is less. Moreover, when a suitable technique is employed the incidence of incisional hernia is reduced to such a degree that in this respect the results are the same as after the Pfannenstiel incision. In none of 2,219 laparotomies in which the midline incision and the described suture technique were used in the author's clinic did rupture of the wound occur. When the relatively shorter time that is required for the making and closure of a midline incision and the better exposure of the pelvis obtained by that type of incision are taken into consideration, the advantages of the Pfannenstiel incision seem questionable.

The second part of the report deals with the findings of histological studies of the healing of abdominal incisions and the absorption of the catgut during that process. The adaptation of the tissues was best when a 5-layer tightly stitched suture was used and poorest when a 1-layer or 2-layer mass suture was employed. The approximation of the tissue layers was facilitated by opening the rectus sheaths. Thin catgut sutures did not seem to increase the incidence of tissue necrosis, and sutures placed in fatty tissue did not appear to cause necroses worthy of mention. In order to hasten and improve the healing process in the aponeurosis it seemed to be of importance to bring the edges of the wound as accurately and closely together as possible. When the edges were closely approximated a true regeneration appeared to occur within from ten to twelve days at the site of the incision in the aponeurosis. When they remained separated or overlapped and other tissue was introduced between them the edges of the aponeurosis become united

as the result of the activity of the fibroblasts of the surrounding tissue, by a collagenous connective tissue which after a period of fifty-four days had not become changed into aponeurotic tissue. The union of the edges of the muscles occurred by a connective-tissue-like cicatrization. A serous suture of the peritoneum seemed to have a considerable influence on the healing process. As even two days after the operation the granulocyte-containing exudate connecting the serous surfaces was covered by a layer of mesothelial cells, the fibrous union of the surfaces (fibrocytes appeared in the exudate on the third or fourth day) was completed under this protecting mesothelial layer. This is of great importance as it prevents the formation of postoperative adhesions and explains why, when a serous suture is used, the incidence of adhesions is only 28.6 per cent, whereas, when the ordinary suturing is employed, as the author reported in a previous communication, it is 67.3 per cent. In properly closed abdominal incisions a firm fibrous scar was formed in from eight to ten days.

The resorption of catgut in the tissues of the abdominal wall is shown by means of a schematic diagram. The exudate cells (granulocytes) first accumulate on the external (convex) side of the catgut loop where the absorption begins. On the third or fourth day, numerous macrophages, and on the sixth day, fibrocytes, are found in the immediate region of the catgut. With the increase in the number of fibrocytes the absorption of the catgut becomes slower. As a rule moderately strong catgut without preparation is absorbed in about twenty days. Signs of an aseptic inflammation caused by catgut may be observed extending widely in the surrounding tissues.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Gordon, C. A.: The Reduction of Mortality in Ectopic Gestation. *Am J Obst. & Gynec.* 1914, 31: 30

The impression that the mortality of ectopic gestation is well under control is erroneous. Nearly 6 per cent of the maternal mortality of the City of New York is due to ectopic gestation, and an equally high mortality including many deaths due to sepsis and those of women not operated upon, is reported elsewhere.

Gynecologists as well as others have published inconsistent results. The outstanding factor is failure of diagnosis. Textbooks disagree on treatment and for the most part fail to emphasize and discuss thoroughly the importance and value of supportive treatment. It should be possible to rationalize teaching at least. It should not be said repeatedly that diagnosis is especially difficult and it should not be stated unqualifiedly that every woman with an ectopic pregnancy should be operated upon at once no matter what her condition and no matter who may be the surgeon.

In the presence of intraperitoneal blood only the simplest operative procedure should be carried out. In many serious cases it is wise to defer operation until transfusion and other supportive treatment has lessened its risk. A comprehensive survey of the whole problem should be undertaken.

EDWARD L. CORRELL, M.D.

Montgomery T. L.: Fibrosis of the Placenta. *Am J Obst. & Gynec.* 1916, 3: 51

The question is raised as to the significance of so-called "fibrotic lesions of the placenta." A review of the cases in which a diagnosis of diffuse fibrosis of placental villi and "perivascular fibrosis of placental vessels" was made revealed that the fetuses born at or near term were of average weight, and that the rate of stillbirth was no higher than a rate explainable by other specific causes. Reconsideration of the histological sections led the author to doubt that either one of the lesions described is a pathological entity. He calls attention to several factors which give the placenta a false appearance of fibrosis, namely the normal variation in structure between different placentas, a variation between individual sections of the same placenta, collapse of the vascular tree of the placenta, and conditions of immaturity of the organ. He protests against the loose application of the term "fibrosis" to undurated areas of the afterbirth. He states that on microscopic examination these areas are found to be zones of necrosis or of intervillous thrombosis. Attention is called to "lesions" of the apophytic placenta, hyper-

plasia of the connective tissue stroma and vessel-wall alterations. In this condition Montgomery finds no disturbances which can be directly attributed to syphilis. He interprets these "lesions" as evidences of arrest of development of the placenta due to arrest of fetal vitality. He finds precisely the same appearance in cases of stillbirth occurring at the same period from other causes.

EDWARD L. CORRELL, M.D.

Dellepiane, G.: A Contribution to the Knowledge of Hematopoiesis in Fetal Life (Contributo alla conoscenza delle anomalie dell'emopoiesi nella vita fetale). *Ginecologia* 1915, 1: 1145.

On the basis of his own observations and of cases reported in the literature the author states that in his opinion leukemia in the newborn is a congenital disease. During pregnancy certain infections or toxic processes are transmitted to the fetus from the mother. Because of the state of incomplete differentiation and the particular reaction of the hematopoietic tissue in the fetus, such a process may produce the picture of acute leukemia more easily and intensely than in extra uterine life.

When the leukemia in infants is associated with an infection such as bronchopneumonia, the exudate as made up almost exclusively of the immature elements of the blood.

HOWARD L. ALT, M.D.

Gulberg, E.: The Sites of Formation of the Sex Hormones in the Normal Pregnant Organism in the Light of Hormone Assays in Pregnancy Continuing After Removal of the Ovaries (Die Produktionsstätten der Sexualhormone im normalen graviden weiblichen Organismus im Lichte der Hormonalassays des ananopen ex graviden Zustandes). *Acta obst. et gynec. Scand.* 1916, 5: 341.

A review of the literature shows with a degree of probability bordering on certainty the correctness of Stillben's theory, advanced in 1905, that the placenta is the site of hormone production during pregnancy. Of particular importance as evidence that the ovaries play a wholly subordinate rôle is the increasing number of reports of cases of bilateral oophorectomy performed in early pregnancy without interruption of the pregnancy. The embryo as the source of hormone production is ruled out by the well-known cases of hydatid mole and death of the embryo.

The methods for qualitative and quantitative determination of the different sex hormones which have been developed in recent years have made it possible to carry out more detailed investigations of the behavior of the individual hormones in pregnancy. Investigations of this kind in pregnancy continuing after removal of the ovaries were carried out by Waldstein in 1912 and by von Probstner in

1931 Waldstein and von Probstner showed that during pregnancy the folliculin and the gonadotrope hormones are produced in the placenta. Similar investigations with an improved technique and for the first time including all of the known female sex hormones were undertaken by the author in 1931. The conclusions drawn from the findings are summarized briefly as follows:

1 The sex hormones occurring in the pregnant organism, viz., folliculin, corpus luteum hormone, and the gonadotropic hormones are produced in the placenta.

2 In the same individual there is a characteristic biological difference between the follicle maturing hormone secreted during pregnancy and in the state of castration, which is indicated by a difference in the type of follicle development.

3 The increased secretion of follicle-maturing hormone characteristic of the state of castration is due, not to the absence of the ovaries as such, but to loss of the subordinate sex hormones—the folliculin or the corpus luteum hormone, or possibly both.

Bernstein, M. Heart Block and Pregnancy. Report of a Successful Delivery. *J Am M Ass*, 1936, 106: 532.

The problem of pregnancy in the case of a patient with heart disease is always serious. It is especially serious when the heart disease is due to complete heart block. In the literature the author was able to find only six cases of pregnancy complicated by heart block in which successful gestation occurred.

Bernstein's patient was a primipara twenty-three years old who had had many miscarriages. She had been under observation in the heart clinic for several years, and precordial pain with irradiation to the left shoulder and arm had been present for about one year prior to her admission to the hospital. The blood pressure was normal and the heart rate varied from 40 to 50 beats a minute. Wassermann tests of the blood were reported 4 plus on several occasions, and continuous treatment for syphilis had been given throughout the pregnancy. Altogether ten electrocardiograms were made at different times. All showed complete dissociation of the auricular and ventricular rates with complete block except on two occasions. During the pregnancy the precordial pain was absent.

After labor for thirty-six hours without apparent progress the patient was delivered of a living child by cesarean section under local anesthesia. Immediately after delivery the cardiac rate was 40 per minute and the complete heart block was changed to a delayed auriculoventricular conduction time of 0.4 second.

This case and the six similar cases reported by others suggest that the gestation should not be interrupted if cardiac compensation is maintained. The patient should be kept under close observation. Electrocardiographic studies are of great value. Prolonged labor should not be permitted, and delivery should be effected by cesarean section or with

forceps under local or spinal anesthesia. If heart failure or decompensation occurs, the pregnancy should be terminated. **HARRY W. FINE, M.D.**

Tsutsulopoulos, G. Kidney Stones and Pregnancy. (Nierensteine und Schwangerschaft.) *Zentralbl f Gynaek*, 1935, p. 2366.

The author reports three cases of kidney stones complicating pregnancy and discusses the diagnostic difficulties in particular detail. He states that, as compared with pyelitis and ureteritis, urinary tract disease caused by the formation of stones is infrequent in pregnancy. The three cases he reports were the only cases of the kind found in the last six years in the material of the Second Gynecological Clinic of the University of Munich. To determine the cause of the urinary disturbance it is not sufficient to assume the presence of urinary stasis caused by the pregnancy or a secondary infection. Roentgen examination of the urinary tract is necessary.

In addition to hypotonia and dilatation of the afferent urinary tract and their sequelae (urinary stasis and infection), other factors responsible for stone formation in pregnancy are metabolic changes, instability of the nervous system, changes in the secretion of the endocrine glands, and especially the constitution, the general and local health, of the woman. Because of the lack of roentgenograms taken before the beginning of pregnancy, the time of the stone formation in the three cases reported could not be determined. Premature delivery did not occur. In one case hemorrhage from the urinary tract caused by a stone was well tolerated. Therefore artificial interruption of the pregnancy is not indicated. After delivery, the stones seem to lodge more easily in the lower part of the urinary tract and the chance of their spontaneous discharge is therefore increased.

(P. CAFFIER) **MATHIAS J. SEIFERT, M.D.**

LABOR AND ITS COMPLICATIONS

Burns, J. W., Marshall, C. M., Roy, D., Bourne, A., and Others. The Treatment of Breech Presentations, with Special Reference to Cases of Extended Legs and Arms. *Proc Roy Soc Med*, Lond., 1936, 29: 205.

BURNS recommends prophylactic version not later than the thirty-sixth week. During labor he uses an abdominal belt. He describes his special technique for delivering the aftercoming head, stressing the avoidance of haste and the use of too much force. After delivery of the arms he allows the body to fall downward to bring the occiput against the symphysis or the descending ramus of the pubis. He does not mention the use of forceps.

MARSHALL describes the method employed in the cases of a series of primigravidas at the Liverpool Maternity Hospital. When the buttocks distended the vulva, delivery was taken over by the obstetrician. Episiotomy was performed under local anesthesia. Later, chloroform anesthesia was employed.

and traction applied to the groins until the knees were at the vulva. The legs were then delivered by pressing in the popliteal spaces. Further traction down and brought the extended arms within reach. As a rule the anterior arm was delivered first. If this arm was not delivered easily the posterior arm was brought down. In only 2 of 41 cases was it necessary to bring down the legs.

ROY described the method used in 155 cases of breech presentation at the General Lying-in Hospital, London. External version was attempted between the thirty-first and thirty-eighth week, under anesthesia if necessary. If this failed and disproportion was likely labor was induced between the thirty-sixth and thirty-eighth week. When labor occurred the legs were extended in 63 per cent of the cases of primigravidae and 43 per cent of those of multiparae. The legs were nearly always left to be born naturally or at most, flexed at the vulva when born to the knees. They were born without aid in 41 of 49 cases of primigravidae and 33 of 39 cases of multiparae. Groin traction was employed only 4 times and the legs were brought down in only 2 cases.

Extension of the arms was the most dangerous complication. It was the chief cause of difficulty in all of the 11 cases of stillbirth from "difficult labor." Both arms or one arm extended in 62 per cent of the cases of primigravidae and 50 per cent of those of multiparae. The arms had to be brought down in 76 of 83 cases. This delays delivery and necessitates more rapid delivery of the head which increases risk to the fetus. Delivery of the head was hastened by jaw and shoulder traction in 31 cases. Forceps were used only once. In no case did true breech inspection occur.

As extended legs and arms may cause so much difficulty in labor especially in the case of primigravidae, ROY was prepared to bring them down, in doubtful cases, early in the second stage. The arms were usually brought down as soon as soon as the second leg was brought down. The legs were not pulled down into the vagina, but were folded to imitate the attitude of complete breech.

GRANER expressed surprise at the differences of opinion regarding the management of breech presentation and the uniformly good results obtained by all procedures. He ascribed the uniformity of good results to the skill of the accoucheurs. He believes it is evidence that skill is the primary necessity and the method used of secondary importance. He is of the opinion that external cephalic version properly performed, will result in death of the fetus in 2 per cent of cases, but is justified because this risk is less than the dangers of breech delivery.

OXLEY stated that the fetal mortality is lowest when, in cases in which there is any question as to the size of the baby, the legs are brought down and the arms adjusted under chloroform anesthesia early in the second stage. The midwife should assist by pushing the baby out to the arm pits while the obstetrician keeps a guiding hand on the trunk with-

out pulling. When the after-coming head is not delivered easily OXLEY uses forceps in preference to strong jaw and shoulder traction.

MOORE stressed the importance of attempting external version before the thirty-sixth week. He stated that in a small series of cases at the Royal Free Hospital, London, it was successful whenever there was a flexed breech but not successful when the legs were extended. All of these attempts were made after the thirty-sixth week.

ROBERT M. GIBBS, M.D.

PURPERIUM AND ITS COMPLICATIONS

Tracey, R.: Intermediate Repair of Injuries Resulting from Childbirth. *Am J Obst & Gynec* 1936, 21: 533

It is claimed that a laceration in some part of the birth canal occurs in every primipara during delivery. This statement at first appears to be an exaggeration. However in a careful study in a post-partum clinic of women who had had chiefly spontaneous deliveries with minimal interference, the incidence of perineal lacerations was found to be 63 per cent, and that of lacerations of the cervix 57 per cent. It is unanimously agreed that if the patient is to be symptom-free, lacerated tissues in any part of the birth canal should be repaired.

All lacerations, wherever located, should be repaired before the patient is discharged from the hospital. The most satisfactory time for the repair is from five to ten days after delivery, when the birth canal can be restored to the normal condition. As a result of such repair the patient will enjoy so far as the pelvis is concerned, the same good health as before gestation.

In 743 cases in which intermediate repair was done there was no undue morbidity and no mortality.

EDWARD L. CONNELL, M.D.

Bondy, V.: Perineal Septals from the Vaginal Polyp of Pregnancy. *Brit M J* 1936, 193

If the number of sporadic cases of perineal septa is to be substantially reduced, obstetricians must fully adopt the methods of surgery in their already largely successful efforts against sporadic postoperative sepsis of intrinsic origin. These methods may be summed up as sterilization or, if sterilization is not possible, exclusion from the field of action of the approaches to the operative area, the avoidance of unnecessary trauma, the prevention of unnecessary hemorrhage in the operative area, and the removal beforehand of septic foci in other parts of the body.

CHARLES BARNY, M.D.

NEWBORN

Shoroff, A.: Cephalothoracostomy of the Newborn (Le céphalothoracostomie des nouveau-nés). *Acta obs et gynec Scand* 1936, 15: 443

The author reviews 175 cases of cephalothoracostomy of the newborn. In 40-53 newborn infants the

incidence of the condition was 0.41 per cent. Of 80 cephalhematomas recorded the first week after delivery 40 made their appearance during the first two days after birth. Ten appeared on the day of birth. In about 50 per cent of the cases the cephaloma was found at the right parietal bone, in about 10, at both of the parietal bones, and in only about 1 per cent, simultaneously at 3 cranial bones.

After discussing the pathological anatomy, general course, diagnosis, prognosis, and treatment, the author takes up in somewhat more detail the factors of importance in the development of cephalhematomas. In about 20 per cent of the reviewed cases there had been a major obstetrical operation which might have been a precipitating injury. Also of importance was the fact that more than 70 per cent of the mothers were primiparas with a duration of delivery exceeding to some degree that of primiparas in general. In a minor number of instances etiological importance was attributed to a head position with abnormal rotation, contracted pelvis, or a hemorrhagic diathesis. The age of the mothers, medium weight of the babies, too early rupture of the membranes, coiling of the umbilical cord, and asphyxia were of less importance. The fact that no fewer than three fifths of the infants were males seems to indicate a constitutional factor in the development of cephalhematomas.

MISCELLANEOUS

Young, J. Maternal Mortality and Maternal Mortality Rates. *Am J Obst & Gynec*, 1936, 31: 198

In 1931, a British commission visited Holland, Denmark, and Sweden to study the conditions governing the maternity services of those countries, the official maternal death rates of which were lower than that of Great Britain.

One of the most striking features of the procedure regulating the assignment of the deaths in these

countries was the manner in which this function had tended to become completely taken over from the control of the clinicians by officials.

It is unfortunate that the great discrepancies existing between the methods of tabulation often make it unsafe to attempt to draw from the death rates useful conclusions regarding the obstetrical practices and the large-scale obstetrical experiments of different nations.

It is becoming more and more evident that this problem demands the attention of obstetricians, as the varying experiences of different countries in regard to the care of their pregnant and parturient women offer unlimited opportunities for profitable study to those engaged in the problems of maternity.

Another important factor making for a lack of comparability of the statistics of different nations is the manner in which abortion deaths are treated. In its frequency, abortion creates a problem of its own, and the manner of its treatment constitutes one of the major factors lessening the comparability of maternal rates. As the number of abortions in a community increases, the total number of births decreases, and vice versa. There is no satisfactory method of dealing with the abortion problem according to the ordinary statistical procedures used at the present time. It is imperative to recognize the fallacious nature of the present system and the fact that its retention prevents efforts to standardize maternal death rates on an international basis.

The causes of maternal mortality may be classified conveniently into three groups: (1) the morbid conditions complicating and adding to the risk of pregnancy, labor, and the puerperium, (2) the trauma and other surgical risks associated with ill-advised obstetrical interference, and (3) abortion.

A study of the British and American reports gives the impression that one of the most sinister features of modern Anglo-Saxon midwifery is the extent of interference with the course of labor.

EDWARD L. CORNELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Trivelpitz, A., and Campanelli, A.: The Function of the Reticulate Fibers of the Kidneys Under Normal and Pathological Conditions. A Clinical and Experimental Study (Sul comportamento delle fibre reticolate del rene in condizioni normali e patologiche. Contributo clinico-sperimentale). *Arch. Ital. di chir.* 1935, 47: 737.

The authors studied kidneys removed at autopsy from both human beings and animals. They studied renal tumors, tuberculosis, hydronephrosis, and pyelonephrosis.

Throughout the investigation the staining was done by the Achucarro-Del Rio Hortega and Urechis methods, which the authors describe in detail. The following conclusions were drawn:

1. The reticulate tissue is found in the normal kidney in the form of interstitial tissue or sheath fibers around the glomeruli or tubules.

2. In the various morbid processes the reticular interstitial fibers undergo hyperplasia and hypertrophy.

3. In tuberculous infections the fibers are found in the center of the infectious mass. When the mass begins to caseate, the fibers are the last to degenerate, and as they undergo degeneration hyperplasia of the surrounding fibers occurs. These fibers act as a protective barrier. However if the process tends to subside before undergoing caseation, they produce a sclerosis in the area of degeneration.

4. In infections, the toxins produce a precocious hyperplasia of the reticular fibers.

5. In hydronephrosis and other solid tumors, the reticular fibers around the tubules have a close resemblance to the normal.

6. In hydronephrosis there is a precocious hyperplasia and hypertrophy of the sheath reticular fibers.

CARLO S. SCORDELLI, M.D.

Jankowski, G.: The Role and Importance of the Renal Parenchymal Lymphatics in the Physiology and Pathology of the Kidney (*Le rôle et la signification des lymphatiques du parenchyme rénal dans la physiologie et la pathologie du rein*). *J. d'anal. méd. et chir.* 1935, 40: 513.

The rôle of the lymphatics of the renal parenchyma is little known and has hitherto been largely ignored. Because of the intimate relations between the circulatory apparatus and the lymphatic system, it is important that this phase be given more attention.

The kidney is richly vascularized and about 40 liters of blood pass through it daily. The rate of arterial circulation is greater in the kidney than elsewhere. All of these factors react upon the circulation of the lymph in the renal parenchyma, which is richly supplied with lymphatics.

In contrast to those of other organs, the lymphatics of the kidney do not follow the course of the blood vessels altogether but have an independent distribution. The amount of lymph circulating in the kidney in a unit of time varies not only with renal activity but also according to physiological and pathological conditions. The chemical composition of the renal lymph is not known exactly but renal activity probably has some influence upon it, giving it a special character. The composition of the renal lymph is also changed by pathological conditions, but just how is not known. Changes in the composition of the blood affect the composition of the chyle. In spite of the numerous gaps in our knowledge regarding the renal lymph, it has been assumed that the lymph plays a special rôle in renal activity. According to recent theories, it is the lymph and not the blood that produces the urine passing into the canalculus, and the kidney plays the part of a gland in transforming the substances brought to it by the lymph.

Although their rôle is not yet thoroughly understood, it appears certain that the lymphatics of the parenchyma exert a physiological action on the function of the kidney. The fluid contained in the subcapsular space is said to be of a composition corresponding to that of lymph. In some cases the accumulation of fluid in this space is so considerable as to justify its designation as a pericapsular hydronephrosis or perinephritic hydronephrosis. The free space between the surface of the capsule and the surface of the parenchyma may act as a sort of reservoir in case of necessity. These facts may account for some of the failures of decapsulation operations. The capsule constitutes a barrier between the extrarenal and intrarenal blood circulation as well as the lymph circulation. Decapsulation gives good results in cases in which adhesions between the capsule and the parenchyma prevent the fluid in the interstitial tissues from escaping into the subcapsular space.

The lymphatics of the parenchyma attempt to compensate for circulatory disturbances. Their rôle in this compensation seems to be more important in the kidney than elsewhere. Venous stasis is often followed by dilatation of the lymphatics and congestion of lymph. Changes in the circulation of the blood determine changes in the circulation of the lymph.

Besides circulatory disorders, a number of mechanical and infectious conditions may affect the renal lymphatic circulation. Urinary obstruction, renal retention, acute subacute or chronic inflammation associated with erosion, or other sequelae may disturb the circulation of lymph in the kidney. However disorders of lymphatic circulation are less frequent than disorders of circulation of the blood.

The lymphatic and the venous circulation constitute a veritable drainage system for ridding the interstitial circulation of excessive components or extraneous substances. Mechanical displacement of the blood vessels due to congestion or a tumor may obstruct or obliterate the lymphatics. Varices and dilatations along the lymphatics may be due to inflammatory or mechanical lesions. It is therefore certain that the lymphatic apparatus is not without influence upon the various infective suppurative lesions of the urinary tract. The phenomena of retrograde transmission of infection and retrograde extension of malignancy along the lymphatics are well known. In ascending infections of the urinary tract the lymphatics play an important rôle. It is believed by many that in interstitial nephritis following pyelitis the bacteria gain access to the kidneys by way of the lymphatics. The lymphatics aid in defense against infection by an inflammatory reaction. In all infections of the urinary tract there is usually a manifest angioleucytic reaction.

The lymphatics play a considerable part also in the localization of tuberculosis in the kidney. Cases of retrograde infection by way of the lymph stream have been reported, and tuberculosis may travel from the bladder to the kidney by way of the ureteral lymphatics. In the evolution and spread of miliary abscesses of the kidney the lymphatics are of great importance. The direct lymphatic connections between the surface of the parenchyma and that of the fibrous capsule explain how inflammatory affections of the kidney may extend to the capsule and from the capsule to the kidney. It is frequently by way of the lymphatics of the parenchyma that perinephritic suppuration reaches the perirenal capsule.

EDITH SCHANCHE MOORE

Graves, R. C., and Parkins, L. E. Carbuncle of the Kidney. *J. Urol.*, 1936, 35, 1.

Carbuncle of the kidney is a circumscribed, multilocular abscess of the renal parenchyma which involves the substance of the organ to a varying extent. It is probably metastatic in most cases, and usually arises from a primary focus of infection elsewhere in the body. The causative organism is most frequently the staphylococcus pyogenes aureus.

The condition was first described in 1905, by Israel. Since then, sixty-five cases have been recorded. Analysis of the sixty-six cases reported in the literature and of the case reported by the authors in this article reveals that the disease in the kidney usually follows a primary skin infection of staphylococcus origin.

The condition is accompanied by pain and at times generalized abdominal distress, with symptoms suggesting gall-bladder or appendiceal disease. In most cases malaise with prostration and fever are associated with the pain. The clinical picture as a whole, vague though it may be, often simulates that of a blood-stream infection.

The clinical confusion is accounted for by the absence of urinary symptoms. Cystoscopy may not

reveal any evidence of the disease, although careful pyelography may suggest it.

The case reported by the authors shows that a correct diagnosis may be made if the history is taken carefully and the clinical course of the illness is thoroughly studied.

The treatment is surgical. It is to be hoped that earlier and more accurate diagnoses of a suppurative process within the kidney will result in surgery more promptly.

The three surgical methods of choice are incision and drainage followed later, if necessary, by nephrectomy, nephrectomy, and enucleation of the carbuncle. The mortality is lowest in cases in which enucleation of the carbuncle can be done, but conditions favorable for this type of operation are infrequent. Nephrectomy has the next lowest mortality and should be considered the treatment of choice. Emphasis is placed on the value of nephrectomy in two stages for patients who have been seriously depleted by the infection. ELMER HESS, M.D.

Roubier, C., Cibert, J., and Barrall, P. Polycystic and Tuberculous Kidney (Le rein polycystique et tuberculeux). *J. d'urolog. méd. et chir.*, 1935, 40, 473.

The authors report a case of tuberculous infection of bilateral polycystic kidney. The patient was a woman forty-one years old. The clinical manifestations during a three-year period of observation were a gradual increase in the blood nitrogen, retention, loss of weight, vomiting, and increasing evidence of renal infection. Guinea-pig inoculation was positive for tuberculous infection, but the report was not obtained until after the patient's death.

Autopsy showed bilateral polycystic kidney with evidences of infection in many of the cysts. Grossly, both kidneys appeared the same. In the left lung there were small, early, tuberculous lesions not discovered clinically. Microscopic examination of the kidneys disclosed the usual changes associated with polycystic kidney and many small areas of early tuberculosis.

In the literature the authors found reports of five other cases of polycystic and tuberculous kidney. Operation was performed in all, either for tuberculosis or for polycystic kidney.

The authors conclude that as a rule a clinical diagnosis can be made of either tuberculous or polycystic kidney when both conditions are present. As anatomically the polycystic lesion overshadows the tuberculosis, the latter can be recognized only with difficulty and by very careful examination. In the authors' opinion, the polycystic condition is primary and the tuberculous infection, secondary.

MAX M. ZEVINGER, M.D.

Gutierrez, R. The Role of Anomalies of the Kidney and Ureter in the Causation of Surgical Conditions. *J. Am. M. Assn.*, 1936, 106, 183.

Anomalies are found in the upper urinary tract more frequently than in any other system of the

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TABLE III—ANOMALIES OF THE BLOOD AND LYMPHATIC SUPPLY OF THE KIDNEY

Anomalies of number 1 to 6 per kidney	
1. Arteries	Anomalies of origin from aorta spermatic artery common iliac artery external iliac artery internal iliac artery sacral artery
	Anomalies of course with reference to vena cava iliac artery hilus superior pole inferior pole
	Anomalies of penetration at from renal artery from aorta from renal artery from aorta from common or external iliac artery front or back of kidney margins of kidney
2. Veins	Abnormal position of inferior vena cava on left side
	Retro-aortic anastomosis of veins Presence of a vein at superior pole renal vein vena cava iliac vein
3. Lymphatics	Presence of a vein at inferior pole opening into renal vein
	Renal vein entirely retroperitoneal Anomalous connection with other systems Following anomalous blood vessels Abnormally connecting with Pecquet's cistern

GILBERT J. THOMAS, M.D.

BLADDER, URETHRA, AND PENIS

Hepler, A. B. Bladder Displacement Secondary to Suppurative Arthritis of the Hip and Osteomyelitis of the Pelvic Bones in Children. *Operation for Impending Perforation*. *J. Urol.*, 1936, 35: 32

In children, osteomyelitis of the pelvis and suppurative arthritis of the hip often cause displacement of the bladder. The displacement is due to the intrapelvic intrusion of a large involucrum. In two of the cases reported by the author there was perforation of the bladder by sequestra. In another case perforation was prevented by sequestrectomy.

The author reports five cases. He has found displacement of the bladder in every child with suppurative arthritis of the hip and osteomyelitis that he has examined.

There are no urinary signs or symptoms. Therefore cystography should be carried out in every case.

If displacement is present, operation should be performed to prevent bladder perforation and to bring about more rapid subsidence of the osteomyelitis. After months of the usual orthopedic treatment, the author's three patients who were operated upon improved rapidly and were discharged in a very short time. The condition does not tend to recur if the osteomyelitis is adequately drained.

ELMER HESS, M.D.

Elbim, A. Cure of Penile, Penoscrotal, and Perineoscrotal Hypospadias by the Procedure of Duplay (La cure des hypospadias péniens, péno-scrotaux et périnéo-scrotaux par le procédé de Duplay). *J. d'urologie méd. et chir.*, 1935, 40: 484

Of the numerous operations devised in the twentieth century for hypospadias, the author claims that none is superior to the operation described by Simon Duplay in 1874, even though

many surgeons are unfamiliar with it. In eighty consecutive cases in which Duplay's operation as slightly modified by Marion has been performed since 1910 there have been no failures. The Duplay operation as modified by Marion is as follows:

If the penis is curved, it is first straightened by one or more deep transverse incisions which are then sutured longitudinally. During the healing, the shaft is held to the abdomen by adhesive tape. From six to eight months should elapse between this operation and the urethroplasty.

The second stage is preceded by abdominal cystostomy which permits complete urethroplasty in one stage. With the penis lying on the abdomen, two parallel vertical incisions 4 or 5 mm from the median line are traced from the base of the glans to just behind the hypospadias orifice, where they are brought together and continued as one incision for a distance of 1 cm. The median epidermic layer will constitute one-half of the circumference of the new urethral canal. It is not disturbed. Extending laterally, however, very wide flaps consisting of the entire thickness of the skin are dissected up. These flaps must be sufficiently wide for approximation of their raw surfaces over a width of from 1 to 1.5 cm. A section of a small rubber catheter perforated with holes, is laid on the central epidermic strip at the site of the proposed urethral canal. The suture material consists of two lead rods pierced with holes about 1 cm apart, fine silver wire and lead beads. One end of each wire suture is passed through a hole in one of the lead rods and rolled around it several times so that it will not slip. The sutures thus extend from the rod as the rungs of a ladder from the side. Beginning on one side, each wire suture is passed through one of the lateral flaps, at its base, from without inward. It then catches the central epidermic strip 1 mm from its edge, crosses over the small catheter, catches the central epithelial strip on the other side, and is brought out through the base of the second lateral flap. It is then passed through a hole in the second lead rod, and a lead bead or tube is threaded on the free end. After all of the sutures are passed they

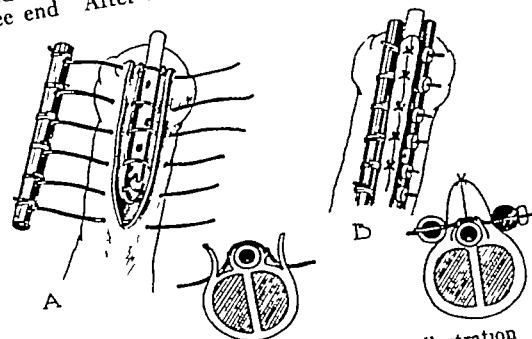


Diagram slightly modified from Elbim's illustration. A The placing of the sutures. B The completed operation.

are pulled up separately and when the proper tension is obtained the lead head is crushed on the wire. When all of the wires are fixed as described, the raw surfaces of the lateral flaps are approximated over a broad area by the two lead rods, which are in turn held by the wire sutures. (The caliber of the lead rods and the gauge of the wire is not mentioned). The edges of the lateral flaps are brought together with interrupted sutures.

After completion of the operation the penis is fixed to the abdomen by a light dressing. The wound is inspected on the second day at which time the tension in the wire sutures is tightened or loosened, if necessary by sliding the lead beads on the wire. The sutures are removed on the eighth or ninth day. For two days following their removal it is important to prevent erection. For this reason, the patient should not be allowed to go to sleep. Duplay always instructed the orderlies to play cards with the patient at this time. The cystostomy tube is removed the fifteenth day. The rubber catheter is usually discharged spontaneously after from twelve to fifteen days. Often a tiny lateral fistula develops through one of the wire holes. This tends to heal spontaneously but if it persists it can be repaired two or more months after the major procedure, when the tissues will have become soft. Formerly, regular dilatation of the new urethra was advised, but this is not necessary as the urethra dilates spontaneously. Originally Duplay believed it necessary to epithelialize the new canal completely but later he found that an epithelial surface on only half the circumference was sufficient.

Max M. Zircowicz, M.D.

GENITAL ORGANS

Laidley J. W. S., and Easton, M. S. S.: Transurethral Prostatic Resection. A Series of Operations on 100 Patients. *Med J Australia*, 1936, 1, 80.

Apart from congenital valves of the posterior urethra acute inflammatory conditions, and sclerosis following prostaticectomy there are 3 distinct prostatic conditions causing urinary obstruction: median disease, median bar and adenomatous enlargement. The vast majority of tumors are adenocarcinomas, which cause obstruction through infiltration and induration of the structures around the vesical outlet and associated narrowing of the posterior urethra. The term "median bar" includes the small fibrous prostatic, prostatitis and prostatic, contracture of the vesical neck, atrophy of the prostate, and fibrosis of the vesical orifice, in all of which the pathological change is a slow fibrosis due usually to long standing infection. Enucleation of either the malignant or the median bar type of prostate is technically impossible. The majority of prostatic enlargements are enlargements of the lateral lobes or the median lobe or of both. This is the only type of prostatic enlargement in which enucleation is possible.

In the 100 reviewed cases of transurethral resection the pre-operative preparation of the patient and the indications for operation were the same as for the suprapubic operation, but when the findings of chemical studies of the blood were satisfactory and the urine was not infected the pre-operative preparation was omitted without untoward results.

The mortality in the 100 cases was a per cent. As 10 patients had a second resection, the operative mortality was 2.32 per cent.

From the results the authors conclude that transurethral resection is the operation of choice for median bar and the best palliative treatment for prostatic carcinoma. They state that controversy is concerned almost entirely with the treatment of adenomatous enlargement. In the majority of the reviewed cases of this condition the immediate functional result was entirely satisfactory. The authors believe that, in general, unsatisfactory results are to be attributed, not to the operation, but to failure to perform it efficiently. Recurrence of symptoms is no more prone to occur after transurethral resection properly performed than after prostatectomy. While the choice of operation for a given prostatic condition must always depend upon the surgeon, the more often the surgeon performs the transurethral operation the more frequently will its results be successful. "The casual reactionist is doomed to failure."

Because of a lack of personal knowledge regarding the period of symptomatic relief to be expected, the authors are not yet convinced that transurethral resection is as surgically sound as open prostatectomy for the patient in good condition with a considerable life expectancy and a medium to large adenomatous prostate. However they recommend it for earlier enlargements of the middle or lateral lobes, for men with a short life expectancy, for men with poor renal function or disease which would render prostatectomy dangerous, for those with suspected malignancy and for cases in which prostatectomy is impossible and, except the transurethral operation, the patient would be condemned to a catheter life or the use of a suprapubic tube. By transurethral surgery the patient is saved the ordeal of an open operation and enabled to pass his urine a week or ten days after a comparatively minor surgical procedure. For the patient with a carcinomatous prostate, transurethral resection is preferable to a permanent cystostomy.

Loon Kierwies, M.D.

Nichols, P.: Modern Views on Hypertrophy of the Prostate. *Lancet*, 1935, 230, 307.

Nichols states that hypertrophy of the prostate was first described in the sixteenth century. As it is a manifestation of old age closely related to renal function, surgeons have long endeavored to cope with it through the genital system.

As the result of advances in surgical technique, prostatectomy became routine treatment, but when Romeis reported a marked reduction in the size of

GENTO-URINARY SURGERY

the prostate of a man of sixty-eight years following the implantation of a testicle from a man of twenty-two years, the old treatment of castration became a matter for further investigation.

Steinach, Landau, Nicod and Heitz-Boyer, the author, and many others then began an investigation of endocrine influence.

All experimental work on animals tends to show that the prostate atrophies and degenerates as soon as the influence of the testicles is removed by castration, radium or X-ray irradiation, or cutting off of the blood supply.

Experiments by Lower and others have proved that destruction of the germinal epithelium and proliferation of Leydig's cells lead to hypertrophy of the prostate.

Steinach reported that vasoligation enabled an old animal which had previously micturated with difficulty to empty its bladder. A variety of hormones have been used experimentally on animals to determine their action on the prostate. According to McCullough, the male sex gland secretes two hormones, one of which stimulates the development and function of the accessory sex glands, including the prostate, and the other of which exerts an inhibitory action on the production of the prolan by the anterior lobe of the pituitary gland and thereby retards development of the prostate. That female hormones also have a definite influence on prostatic enlargement has been proved by the fact that it has been possible to start a pathological new growth in the gland by the use of a female hormone. As, according to Lower's findings, the hormone of the sex glands diminishes very slowly in old age, the pituitary gland has plenty of time to produce its prolan and evoke hypertrophy of the prostate. The same conditions may play a considerable role in the development of prostatic conditions in man.

The author's conclusions are summarized as follows:

- 1 The normal secretion of the interstitial cells of Leydig contributes to the normal development of the prostate.
- 2 The pituitary prolan as well as the secretion of Leydig's cells, if excreted for a considerable time in increased amounts, produces adenoma of the prostate.
- 3 An excess of follicular over male hormone leads to the formation of the fibromyomatous prostate.

On the basis of the theory that if, in old age, it were possible to augment the internal secretion of the sex glands, especially that of the germinal epithelium, the increased output of prolan would be stopped, but the physiological balance between the male and the female hormones would reduce prostatic enlargement, the following methods of treatment have been used: (1), injection of male hormone, (2) transplantation of the testicles of adults, and (3) Steinach's ligation II diverting all of the secretion from the germinal epithelium into the blood stream.

In conclusion, the author states that he has performed a large number of ligation operations. In cases without infection the duration of the treatment was twelve days and there was no mortality. He advises treatment at the onset of prostatic trouble before any indication for prostatectomy is presented, and he recommends it as a prophylactic against the interaction of the endocrines due to age which favors hypertrophy. He believes that when the endocrine glands become more thoroughly understood there will be no necessity to choose between the use of a catheter and prostatectomy.

Steinach's ligation II will relieve a great many of the sufferers from prostatic enlargement, however advanced their age, without shock, pain, loss of blood, or risk.

ELMER HESS, M D

MISCELLANEOUS

Neff, J H Congenital Canals and Cysts of the Genitoperineal Raphe *Am J Surg*, 1936, 31 308

In textbooks and journals published in English there is scant reference to congenital canals and cysts of the genitoperineal raphe, but articles on the subject in other languages are fairly numerous even though such canals and cysts are rather uncommon. The author reports three cases of raphe canals, two cases of cysts of the penile raphe, and one case of peniurethral cyst.

Case 1 A boy thirteen years of age first noted one year prior to his admission to the hospital a small reddish tender nodule in the penile raphe, about 2 cm from the end of the prepuce. Five or six days prior to his admission, linear redness and swelling spread rapidly backward along the raphe of the penis, scrotum, and perineum from the site of the original nodule to a point within 1 cm of the anus. At both extremities of the process there were multiple pustules. Except in the scrotal area, where it was deeper, the cord of induration was palpable within the skin. Pus could be expressed from both the penile and the perineal ends of the tract, and shortly after the patient's admission to the hospital a probe could be passed from one end of the tract to the other. Urine was voided freely and was free from pus. Healing was prompt after incision of the tract throughout its length.

Case 2 The patient was a man twenty-four years old who was admitted to the hospital January 10, 1935. In December, 1932, he had noted soreness in the midline of the undersurface of the penis, and water blisters which ruptured, leaving six small openings. In 1933 he contracted gonorrhea and was discharged as cured of this condition at the end of eight weeks. He then had no serious inconvenience until December, 1934, when swelling about the orifices on the undersurface of the penis and a purulent discharge occurred. The posterior opening soon became occluded, swollen, and tender. Probes introduced into the openings showed that most of them communicated, but not from one end to the

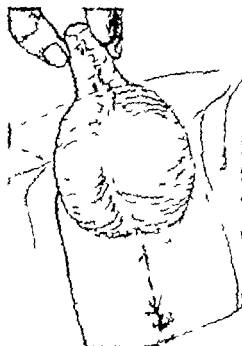


Fig. 1. Case . Drawing from sketches made to scale at the time of operation. The superficial portion of the vaginal canal is well illustrated. In the posterior part of the scrotum the canal dips below the skin surface to reappear in the perineal cleft.

other. Gonorrhea was found in the canals and abscesses. Excision of the canals and abscesses led to primary healing. Examination of the tissue removed showed the lining of the anterior portion to be stratified squamous epithelium while that of the posterior portion suggested transitional epithelium.

Case 3. This patient was a man twenty-six years of age. Four weeks after venereal exposure a pimple appeared in the frenulum just below the meatus,

and from it gonococcal pus could be expressed. A silver bougie could be passed into the cavity for 12 mm. Both incision and excision were refused.

Case 4. A forty-three-year-old man was admitted to the hospital on account of renal colic. In the routine examination a pedunculated cyst was found in the penile raphe just anterior to the scrotum. The cyst was not adherent to the skin. In the same region in the raphe there was a much smaller cyst. Both cysts and the overlying skin were removed under local anesthesia. The larger cyst was found to be filled with brownish mucoid material and lined by stratified columnar epithelium. The cyst wall showed an occasional goblet cell. The smaller cyst had four or five layers of transitional epithelium and no goblet cells.

Case 5. The patient was a man twenty-eight years old who ten days before his admission to the hospital, had experienced difficulty in voiding and after a few days noticed a tender swelling just back of the scrotum in the midline. There was no history of trauma to that area. The difficulty in voiding increased and the patient "left out of sorts." On his admission to the hospital he had a mass in the perineum about the size of an English walnut and a temperature of 99 degrees F. A diagnosis of periurethral abscess was made. At operation, the mass proved to be a cyst of the anterior portion of the bulb. It contained about 30 c.c.m. of brownish mucoid material. Its wall was lined with typical transitional epithelium.

Case 6. A man sixty-eight years of age presented a cyst about 1 cm. in diameter at the posterior extremity of the frenulum at the border of the penile raphe. The cyst was freely movable and superficial. It had been present since birth, but had never caused symptoms or inconvenience. On its removal through a small nick in the overlying skin, it was found to contain cloudy mucoid material. The epithelium was of the columnar type presenting a picture very similar to that of cervical glands with hyperplasia of the lining epithelium.

Both the canals and the cysts are generally supposed to be congenital as they correspond to defects

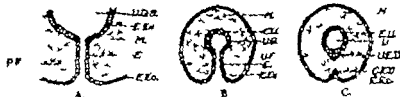


Fig. 2. Diagrams of the development of the perineum and the genital tubercle. A. Section of the perineal folds at the level of the urogenital canal. B. Section of the genital tubercle, urethral groove, and folds. C. Section of the genital tubercle at the moment of closure of the urethral folds. U G U Urogenital canal. U G Urethral groove. U Urethra. P F Perineal folds. U F Urethral folds. M Mesoderm. E Ectoderm. E E Ectodermic epithelium. E U Urethral epithelium or modified ectodermic epithelium. E Epithelium lining the internal surface of the folds. U E D Epithelial debris of the mesoderm type from the internal surface of the folds. C E D Epithelial debris of the ectodermic type.

GENITO-URINARY SURGERY

in the embryonic development of the external genitalia. According to one theory, they arise from epithelial rests. According to another, they develop from split-off outgrowths of embryonic epithelium after primary closure of the folds. This origin is quite comparable to the origin of branchial cleft cysts. According to a third theory, they are due to the migration of embryonic epithelium from either the urethral endoderm or the surface ectoderm along the line of fusion. Congenital cysts of the raphe are classified as mucous or dermoid according to whether the lining epithelium is of the columnar or the stratified squamous type. Mucous cysts are more often observed than dermoid cysts. These structures usually cause few symptoms unless they become infected or grow large enough to interfere with the free flow of urine. When they are infected, treatment by incision and drainage is often followed by prompt healing. If the infection is quiescent, they may be readily and safely excised.

The article is summarized as follows

1 Five cases of canals or cysts of the genito-perineal raphe and one case of periurethral cyst are reported

2 These canals and cysts are explained as arising from epithelial rests incident to imperfect ventral fusion in the formation of the external genitalia, or from masses of epithelial cells which have migrated from the primitive epithelium. They are therefore congenital in origin.

3 The canals and cysts have an epidermoid or mucous lining depending upon their cells of origin. In practically all of the canals and in a smaller majority of the cysts the lining is epidermoid.

4 The raphe canals apparently manifest themselves only after infection, usually with gonorrhea. The canals may become so infected without involvement of the urethra.

5 The treatment of both canals and cysts is surgical.

CLAUDE D HOLMES, M D

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Pereira, R., and Duperrault, M.: Experimental Studies of the Pathogenesis of Osteogenic Exostoses Carried Out with the Aid of Grafts of Joint Cartilage (*Recherches expérimentales sur la pathogénèse des exostoses ostéogéniques à l'aide de greffes de cartilage de conjonction*). *Presse méd.* Par. 936, 41 163

In 1923 Leriche and Policard reported a study of the development of exostoses in the case of a child nine years of age. From their findings they concluded that these structures were the final result of primary deviation of a fragment of joint cartilage from its normal line of growth, the remainder of the cartilage having kept its usual connections so that nutrition of the whole was maintained. The deviated segment of cartilage grew in a different direction from the normal direction but continued to obey the general laws which determine the growth of joint cartilage. Leriche and Policard believe that the condition is of cartilaginous origin, and that the cartilage develops according to physiological laws.

To test this theory the authors performed experiments on rabbits from eight to ten weeks old. They grafted pieces of joint cartilage beside the diaphysis of the humerus. The technique of the experiments and the histological findings are described in detail.

It was found that, in rabbits, the application of autografts of living joint cartilage to the compact tissue of the diaphysis after removal of the periosteum may lead to the development of osteogenic exostoses like those occurring in man. The failure of such exostoses to develop in six of the nine rabbits was probably explained by lack of immediate contact between the graft and the bone tissue of the diaphysis in these animals. When the cartilage was fixed in 95 degree alcohol it did not cause exostoses. Whatever the position in which the graft was placed, the exostoses developed in the normal direction of growth of the cartilage. The ossification of the exostoses caused rarefaction of the compact tissue of the diaphysis and its change into spongy tissue.

A comparison of the structure and development of the experimentally produced exostoses with the osteogenic exostoses observed in man led the authors to agree with the interpretation of Leriche and Policard.

ANNALS OF THE NEW YORK ACADEMY OF MEDICINE

Coburn, L.: Considerations Regarding 89 Cases of Osteomyelitis of the Long Bones in Children (Considerations proposées de 89 cas d'ostéomyélite des os longs chez l'enfant). *Rev. de chir.* 935, 54 768

Coburn states that there has been no important modification of the treatment of acute osteomyelitis

of established value in the last half century. Vaccine therapy has been tried instead of, or in conjunction with, operative procedures, but has not definitely improved the results. Early resection of the infected metaphysis or diaphysis has not been found superior to less radical surgical procedures. While in some cases its results have been good, in others they have been poor because of failure of regeneration.

Among 4,700 cases admitted to the Surgical Clinic of the University of Liège during the period from January 1910, to January 1935, there were 39 cases of osteomyelitis of the long bones in children. The incidence of the latter was therefore 1.25 per cent. The children ranged in age from less than one year to fourteen years. Thirty-six of them were boys.

The infecting organism was identified in 40 cases. In 32 (80 per cent) it was a staphylococcus in 6 cases (15 per cent) a streptococcus and in 1 case each, a colon bacillus and a pneumococcus. Of 11 cases in which the portal of entry of the infection was determined, it was an infected wound in 9, a furuncle in 6 and throat infection and impetigo in 3 each. In 13 cases there was a definite history of trauma.

The bone most often involved was the tibia. Next most frequently affected were the femur and the humerus. In 13 cases more than one bone was involved. In 9 cases there were 2 foci in 3 cases, 3 foci and in 1 case, 5 foci.

In 7 cases the disease was of the septicemic type. In 5 of the 7 the tibia was involved. In these cases, pain in the bone with swelling and redness of the involved area usually followed a slight trauma. After a rapid pulse developed by the second or third day the general condition became rapidly worse, with delirium and coma, and the patient died in spite of treatment.

Three cases were of the severe pyemic type. In these, the pain in the bone first involved increased until the second or third day and then became somewhat less severe. By the fifth or sixth day the temperature was oscillating. The pulse became more rapid as the disease progressed. The secondary foci involved chiefly the bones. Two of the patients died after being ill for forty days and three months respectively. In each case there was a purulent arthritis of the knee joint associated with osteomyelitis of the metaphysis of the tibia. Amputation at the hip was done in all of these cases, but saved life in only 1 case, in which it was done early, eleven days after the onset of the arthritis.

In 10 cases there was a less severe pyemic form of the disease with the rapid development of secondary foci but with only slight general symptoms. The infection in the secondary focus or foci was of a more benign type than that in the primary focus, as if the

infecting organism had lost some of its virulence or the resistance of the patient had increased. In some cases the secondary focus did not develop until after several months.

There were 14 cases of localized infection with large sequestra and 22 cases with small sequestra. The symptoms, both local and general, were less marked in the second group than in the first. In the second group there were 10 cases in which the disease ran a subacute course with intermittent pain in the affected bone and no evidence of suppuration for a month or two. Six of the patients with this condition came to the hospital with a spontaneous fistula. In 7 cases small sequestra came away spontaneously.

In 11 cases there were no sequestra. These were the cases of 8 infants and young children with a benign course and few general symptoms and 3 cases of subacute trochanteritis. In the cases of infants there was no evident suppuration but a slightly painful swelling occurred at the site of involvement. The roentgenogram showed a periosteal reaction without a destructive lesion. In these cases the lesions regressed in a few weeks without treatment.

Purulent arthritis was a complication in 14 (7 per cent) of the cases. In 8 it involved the knee and in 4 the hip.

In the 30 cases there were 10 deaths. Seven of the deaths occurred in the cases with severe septicaemia, 2 in the cases of severe pyemia and 1 in the cases of the localized type with large sequestra. In the cases of 2 patients who survived disarticulation was done at the hip because of severe purulent arthritis of the knee. In 5 cases total ankylosis of a large joint resulted from purulent arthritis. In 1 case intermittent symptoms of infection persisted and in another the knee showed a permanent abscess of the form due to osteomyelitis of the upper portion of the tibia. Thirty-six of the patients recovered without sequelae. However, these patients cannot be regarded as cured as there is always danger of a new infection.

The treatment was conservative. In all cases except those with spontaneous sinuses the periosteal abscess was incised and the wound packed. If the abscess had invaded the soft tissues a rubber drain was inserted for a few days. Carrel-Dakin irrigation was employed in only a few cases. In 15 cases trephination of the bone was done. In 3 cases this operation had no effect on the course of the disease. In the 8 other cases—4 with large and 4 with small sequestra—it was of no evident benefit as compared with drainage of the periosteal abscess. In 23 cases sequestrotomy or curettage was done in addition to incision of the abscess.

The author is doubtful as to the value of trephination of the bone in osteomyelitis as it is difficult to determine whether the pus is in the medulla. Of the 8 cases in his series in which this operation was done pus was found in the medulla in only 3. When the infection is extensive, drainage by this operation as well as by incision of the periosteal abscess is in-

complete. Coheur believes that when the symptoms persist after drainage of the periosteal abscess and the infection appears to be extending, subperiosteal resection of the diaphysis is the only operation which is sufficiently radical. The treatment indicated following this operation is immobilization of the limb in good position and infrequent dressings without the use of antiseptics. Subperiosteal resection of the diaphysis should be done only in severe cases as the bone may not regenerate well.

Vaccines were used in 12 cases. A stock vaccine was employed in 10 and an autogenous vaccine in 2. From 6 to 20 injections were given twice a week. This treatment had no definite result. It did not prevent the formation of sequestra or hasten healing of the sinus. The author believes that simple incision cures most cases of osteomyelitis with minimal operative risk. While healing is slow, good function is usually regained in four or five months.

ALICE M. MEYERS

Baudet G. and Cahuzac M. Experimental Studies on Osteomyelitic Infection (Recherches experimentales sur l'infection ostéomyélique)
Revue de chirurgie 1935, 54, 801

The authors state that some surgeons regard subperiosteal resection of the diaphysis as the treatment of choice for osteomyelitis and believe it should be performed in the early stages. Others advocate it only as a secondary operation when other less radical measures have failed to cure the infection and promote healing.

In an effort to determine the best time for resection Baudet and Cahuzac attempted to produce osteomyelitis experimentally in animals. Rabbits from two to three months of age were used. In some of the experiments staphylococci were injected intravenously in others subperiosteally, and in a third group into the metaphysis. No bone infection was produced by the intravenous injections, even after the bone (the tibia) had been traumatized. Bone infections were produced by the subperiosteal and intraosseous injections, but they did not in any way resemble the lesions of osteomyelitis in either children or human adults. The pus was thick and white like paste. The diaphysis was not involved. The lesions were entirely benign. There were no sequestra, and the lesions healed spontaneously. The animals showed no general symptoms. The rise in the temperature and leucocytosis which are characteristic of osteomyelitis in man did not occur. Therefore the lesions could not be used as a basis for the study of possible operative procedures in osteomyelitis in man.

In a study of the blood calcium of the animals with such bone lesions which was made in conjunction with roentgenographic study of the healing process in the lesions it was found that when reparation of the lesion began the blood calcium immediately decreased, as if all the reserves of calcium in the body were being mobilized at the point where they were needed for the healing process. The blood

calcium rose gradually as the healing process progressed, and when healing was complete it attained normal levels, indicating that when extra calcium was no longer required for the healing process in the bone, it was released into the general circulation. These findings suggest that, in osteomyelitis, frequent determinations of the blood calcium might be of aid in determining the best time for resection. This time would be when the blood calcium reaches its lowest level, indicating that the regenerative processes in the bone are at the maximum.

ALICE M. MAYERS

Erdheim, J.: The Genesis of Paget's Disease of Bone (Ueber den Genese der Pagetischen Knochenkrankung). *Beitr. Anat. path. Anat.* 915, 96 1

The genesis and etiology of Paget's disease are still obscure. This article is based on the examination of the skull of a woman seventy nine years old who died of cerebral softening and pneumonia. An incidental finding was the discovery on the vertex of an early stage of Paget's disease of the skull in the form of a sharply outlined area the size of the palm of the hand the presence of which was indicated only by its reddish-purple color. The lesion had grown from one spot.

Such areas of rarefaction have been described previously by others. The roentgenologist, Schneider, designated them as "osteoporosis circumscripta." Erdheim considers them as representing the beginning stage of Paget's disease. He states that this clinically symptom free stage of the condition is always an accidental roentgen finding. According to his investigation, the typical picture of Paget's disease is not preceded by a roentgenologically demonstrable porosis and the lesion demonstrated in the roentgenogram which is called "osteoporosis circumscripta" is complete Paget's disease in an early stage. Porosis is suggested because the diploë, which have been altered to the typical Paget picture and are macroscopically calcified and condensed rather than porotic, throw a lighter shadow than normal because their calcification is incomplete. Moreover these Paget diploë characteristically replace the normal compact tables.

The roentgenogram of the postmortem specimen, which is made under much more favorable conditions, is not overlaid by the shadow of the opposite wall, and is therefore much more exact than the roentgenogram made during life. It shows a condensed diploë structure clearly in the lighter area. Although both factors responsible for the lighter shadow (absence of a table and low calcium content of the new Paget bone) persist, the bone shadow becomes irregularly denser as the normally thick bone becomes considerably thicker and unevenly denser even to obliteration in scattered small areas. Ultimately the roentgenogram shows the characteristics which heretofore were considered requisite for the diagnosis of Paget's disease. Therefore what was heretofore diagnosed roentgenologically as Paget's disease is an advanced stage of the condition.

With regard to the mosaic structure, Erdheim concludes that not only normal bones, but also almost all pathological bones are rebuilt and have a mosaic structure. Only the form and arrangement are different in different diseases. In Paget's disease the building up and tearing down are irregular giving rise to numerous short, irregularly coursing columns.

In discussing the histogenesis of Paget's disease, Erdheim expresses the opinion that there is a primary change in the bone marrow which should not be overlooked. However he states that, because of technical difficulties (staining of decalcified cellulosin sections), it is still impossible to determine with certainty whether this change is a localized inflammation or a hyperplasia. The Paget changes are secondary. An inflammatory origin of Paget's disease is by no means certain.

With regard to the calcium content of the bone in Paget's disease, Erdheim states that while there are no anatomical studies which definitely prove that the calcium content is lowered, his roentgenological and microscopic studies demonstrated such a lowering. The decrease in the calcium content weakens the bone, causing it to bend.

Erdheim considers early focal Paget disease of the skull, called by roentgenologists "osteoporosis circumscripta," as valuable material for study of the histogenesis of Paget's disease.

(REDACTED) LEO M. ZIMMERMAN, M.D.

Wilson, T. S. Manipulative Treatment of Subacute and Chronic Fibrositis. *Br. M. J.* 936, 998

Fibrotic nodules and cords are the result of an inflammatory or rheumatoid process which produces an agglutination of fibrous or muscle-tissue bundles. The nodules may cause chronic pain which is often referred and can be relieved by manipulative treatment breaking up the agglutination and causing the nodule rapidly to disappear. Torna, presumably streptococci in character and living organisms may be contained in the nodules and may cause a general reaction after manipulative treatment. This treatment may be given by finger massage or by cautious blows with a mallet. The majority of the nodules are located in the origin of the muscles. Pressure may be applied on the lesion against the underlying bone. Fibrotic pain may be referred to the heart or to the diaphragm, appendix, or some other abdominal organ. When the diagnosis is obscure, nodules and cords should be searched for along the intercostal nerves.

CAROLINE C. GRY, M.D.

Bauer, W., and Bennett, G. A. Experimental and Pathological Studies in the Degenerative Type of Arthritis. *J. Bone & Joint Surg.* 936 15

The authors prefer the term "degenerative joint disease" to the term "degenerative arthritis" or its synonyms "hypertrophic arthritis," "osteo-arthritis," "arthritis deformans," and "senile arthritis."

In a study of supposedly normal and symptomless knee joints removed at autopsy from persons in all

decades of life, they found increasing pathological changes with each decade after the second. The changes were confined mainly to the articular cartilages and were of a degenerative nature. Their findings convinced the authors that extensive degenerative changes may be present in joints without causing symptoms and are due to the wear and tear of daily use and increasing age. Unusual joint changes or repeated trauma may produce similar changes in a particular joint. Degenerative changes in the articular cartilages have been found frequently in the joints of cattle. In these and in artificially produced cartilage defects in dogs there is but little attempt at healing. This is true also in man. These facts indicate that such degenerative lesions have no connection with any inflammatory, metabolic or endocrine disorder although true rheumatoid arthritis and degenerative disease may coexist in the same joint and aggravate each other. Degenerative joint disease never produces ankylosis and in time may become quiescent and painless. The treatment consists in encouraging the patient reducing his weight and correcting faulty mechanics.

CHESTER C. COLE, M.D.

Hadjopoulos L. G. and Burbank R. Streptococcal Dissociation in the Pathogenesis of Chronic Rheumatoid Arthritis. *J. Bone & Joint Surg.*, 1936 18 10

In experiments on rabbits the authors were able to produce typical rheumatoid arthritis by the intravenous injection of streptococci isolated from the blood stream of human beings with chronic arthritis. When cultures were made of tissues from the affected joints of eighteen patients with chronic arthritis, only three were positive for streptococci. The remainder were either sterile or showed only staphylococci or diphtheroid bacilli. The question then arose as to whether the latter organisms were contaminants or of pathogenic importance. Careful study of the eighteen clinical cases revealed that all of the patients had either suffered at one time from rheumatoid arthritis or had a type of arthritis characterized by bone and synovial changes. The cases were classified according to the activity of the inflammation seen in microscopic sections of tissues removed from the joints. In two cases the condition was classed as inactive, the joint cultures being sterile. In two, it was slightly active and cultures showed diphtheroid bacilli. In eleven it was moderately active and cultures showed either diphtheroid bacilli or staphylococci. In three it was active and streptococci were found.

The significance of these bacteriological findings was discovered in another case—that of a child with acute arthritis of the elbow which was metastatic from mastoiditis. Cultures from the elbow revealed a mannite-fermenting hemolytic streptococcus and this organism persisted in subcultures for four successive generations. In further subcultures however, pleomorphic diphtheroid bacilli and staphylo-

cocci forms appeared. These organisms were unstable, readily dissociating into apparently unrelated bacillary and coccic forms. Later cultures of fluid from the elbow joint showed diphtheroid and staphylococci organisms.

These studies suggest that chronic rheumatoid arthritis may be the result of a multiple mutant infection. In the acute stages the streptococci form of the organism prevails in moderately active stages coccoid and bacillary forms are seen, in still less active stages the diphtheroid bacilli alone appear and in the inactive stages the cultures are sterile. The basis for rational therapy for chronic arthritis may lie in an understanding of how the humoral immunological process produces such bacterial metamorphoses.

CHESTER C. COLE, M.D.

Collins D. H. The Pathology of Synovial Effusions. *J. Path. & Bacteriol.* 1936 4 113

During a period of twelve months the author examined a large number of joint fluids most of which were obtained from cases of chronic arthritis of obscure origin. Cytological examinations were made of all and chemical and bacteriological examinations of the majority. These investigations were undertaken for two purposes (1) to confirm some of the views regarding the physiology of joint fluid, and (2) to determine whether there are any chemical characteristics of diagnostic value in different types of effusions.

They showed that, except for a high total protein in some of the fluids from rheumatoid joints, the effusions had no specific features of diagnostic value. However, with regard to the physiology of joint fluid the findings were of great interest as they help to explain the formation and origin of normal synovial fluid as well as pathological effusions. Normal synovial fluid is a specialized fluid matrix of a connective tissue. Apart from chemical or biological findings any fluid in excess of the normal is termed pathological. The tremendous increase in the volume of fluid in a joint when an effusion forms cannot be attributed to a sudden acceleration of the normal process, and in cases of traumatic effusions is not always due to bleeding into the joint. Transudation from the plasma is an important factor in the formation of synovial fluid.

Other synovial effusions show, in addition to abnormal volume, an increased number of cells, mainly polymorphonuclears or lymphocytes, these fluids being found in conditions with known inflammatory changes in the synovial membrane. Another factor, and probably the only important one, in the formation of pathological effusions and in acute pyogenic joint infections is inflammatory exudation. In chronic arthritis this operates in conjunction with plasma transudations and normal fluid formation by the synovial tissues.

The extent to which inflammatory exudation contributes toward the formation of an effusion can be determined by cytological examination of the fluid. The two most important estimations are the total cell count and the differential polymorphonuclear

count. The striking difference in the cytological findings in fluid from cases of traumatic osteo-arthritis and that from cases of rheumatoid arthritis reflects the difference between the underlying pathological changes. The author reports two cases of "sympathetic" effusion resulting from acute inflammatory lesions near a joint. In neither was there a significant abnormality in the total cell or the polymorphonuclear count, and in neither were the joint tissues themselves involved.

RUDOLPH B. RASCH, M.D.

Meyerding, H. W.: Dupuytren's Contracture.
Arch Surg 1936 22 320.

In 1833 Dupuytren described a flexion deformity of the fingers caused by thickening and shortening of the palmar fascia. In most cases of this condition modern aseptic surgical technique permits correction of the deformity and restoration of good function of the hand.

A disease that produces a disability which affects the patient's earning capacity may assume economic and medicolegal importance. Etiological factors, such as trauma, infection and heredity are therefore also of importance.

This article is based on a study of 448 hands of 173 patients with Dupuytren's contracture which were observed at the Mayo Clinic. The author concludes from his experience that the pathological changes in the contracture are not commonly recognized and the benefits of modern aseptic surgery not generally appreciated. In many instances the surgeon is not consulted until extension of the contracture has involved several fingers and the finger tips and there is extensive involvement of the skin, peripheral nerves, and blood vessels. For the best results the contracted and thickened fascia should be excised early.

Of the patients whose cases are reviewed, 241 (85 per cent) were males and 32 (18 per cent) were females. The average age was fifty-four years. The youngest patient was seventeen, and the oldest, eighty years of age. One hundred and seventy-five (64 per cent) of the patients had involvement of both hands, 69 (5 per cent) involvement of only the right hand and 29 (11 per cent) involvement of only the left hand. Therefore, of the 98 patients with unilateral involvement, 70 per cent had involvement of the right hand. The duration of the involvement ranged from several weeks to twenty-five years.

One hundred and twenty-three (45 per cent) of the patients were laborers such as farmers, mechanics, and others who work out of doors or whose hands are subjected to stress, and 150 (55 per cent) were mental workers and others whose hands were not subjected to stress. Although the type of occupation given at the time of examination often indicated that the patient led a sedentary life, many bankers, school teachers, and physicians had been accustomed to doing the most strenuous kinds of labor earlier in life.

Foci of infection, which might be considered possible etiological factors, were found in 241 cases. In the remaining 132 cases a definite focus was not noted or examination for the discovery of such a focus was not carried out. The most common sites of infection were the tonsils and teeth.

Trauma may be considered an etiological factor especially by patients who may benefit from workmen's compensation or insurance. Frequently beginning contracture is attributed to some alleged or sustained injury in cases in which inspection or an interval of time would reveal a bilateral lesion.

The variety of the complaints and the findings at the time of examination indicated that no one condition or disease was of outstanding importance in the development of the contracture. The etiology of the contracture is still obscure. The author believes that heredity is of some importance, and that this will be demonstrated if the history is taken carefully.

In the presence of manual deformity skilled workers, mechanics, and surgeons have a higher grade of occupational disability than merchants, bankers, and clergymen. Therefore the grade of occupational disability may have little relation to the grade of the deformity.

If great care is taken to avoid injuring blood vessels, nerves, and tendons, subcutaneous flaps only may relieve the contracture responsible for some of the lesser degrees of deformity. However, the results are most successful when the contracted palmar fascia is removed and proper postoperative measures are taken.

In some cases of extensive lesions, especially those in which operations have been performed previously and have been followed by ankylosis, Meyerding has obtained excellent results by excising the contracted fascia and the involved skin and using the skin from a dissected finger as a pedicled graft to cover the denuded palm. Most of the cases in which this method was used were cases in which it was necessary to remedy a poor result from a former operation, the finger was acutely flexed, and the prognosis for function of the finger was poor.

The reviewed cases were encountered over a period of approximately twenty years. Meyerding regards it as not unlikely that the results will continue to improve with improvement in technique and in knowledge of the condition. In estimating the results he considered those of amputation satisfactory. The results in the 27 hands of patients who have died or who cannot be traced may be classified with either the satisfactory or the unsatisfactory results. If they are classified with the former the incidence of satisfactory results in terms of hands operated upon was 91 per cent, whereas if they are classified with the unsatisfactory results, the incidence of satisfactory results in the hands operated upon was 67 per cent. The preferred operation, excision of the palmar fascia, was performed on 97 of the 173 hands. The possessors of 23 of these 97 hands have died or cannot be traced. If the results in these 3 hands are classed with the satisfactory results, the

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

incidence of satisfactory results in terms of hands operated upon was 60 per cent, whereas if the are classed with the unsatisfactory results, it was 68 per cent. If the hands of patients who have died or cannot be traced are entirely omitted from the calculation, the incidence of satisfactory results from all operations was 88 per cent and the percentage of satisfactory results from every one of the primary lesions was 89 per cent.

Hosford J. P. Kuemmel's Disease

1. Kuemmel's disease was first described by Kuemmel in 1894 when he reported six cases of the condition. He divided the course of the disease into three stages: Latent, Walker, and Oiler, and described the following stages:
 - a. The stage of injury. The injury may be slight or severe enough to keep the patient in bed. The spine may be affected indirectly by sudden forced flexion such as may take place in a diving or a fall, or it may be injured in a fall on the buttocks or on the spine.
 - b. The post-traumatic stage. The stage is variable. In some cases the entire posterior arches, whereas in others there is local pain in the back and a few vertebral processes.
 - c. The latent stage. This stage in which there are no symptoms, varies in length from a few days to years.
 - d. The stage of the onset of fracture symptoms. The chief symptom is a sharp pain in the site of the affected vertebral body. In the roentgenogram is seen a collapse of the vertebral body.
 - e. The last stage. If treatment is neglected there is complete collapse of the affected vertebra, whereas if satisfactory treatment is carried out collapse of the bone is prevented and resolution of the pathological changes occurs.

A number of theories have been advanced to account for the collapse of a vertebra following trauma. Kuemmel at first attributed the collapse to a rarely occurring trauma of inflammation. Later he took the view that there is always some damage to the bone. In two articles published by him in 1913 he cited Schmorl's work on prolapse of the nucleus pulposus of an intervertebral disk into the body of the vertebra and suggested that this condition might have some relationship to Kuemmel's disease.

For the diagnosis of Kuemmel's disease in the case of a patient with kyphosis a roentgenogram taken soon after an injury which shows an apparently normal vertebra and a roentgenogram taken at a later date which shows collapse of the vertebra are necessary.

Although more than thirty years have elapsed since Kuemmel's disease was first described, it is not yet fully understood. In the author's opinion there is no basis for the theory that the condition is



Kuemmel's disease

- anything other than a fracture of a vertebral body which has been overlooked.
- On the basis of his studies, Hosford draws the following conclusions:
1. Compression fractures of the bodies of the vertebrae are easily overlooked because of the relative mildness of the symptoms and the absence of signs.
 2. In all cases of pain in the spine following an injury, roentgenograms of the vertebrae should be made and if the lateral roentgenogram is not clear it should be made again.
 3. If the roentgenograms show no fracture and the pain persists when the patient gets up, another lateral roentgenogram should be made and the patient kept under the closest possible observation for the onset of kyphosis.
 4. Treatment in an ambulatory plaster jacket should be instituted at the first sign of injury to the body of a vertebra.

NORMAN C. BILLOCK, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Goebell, R., and Freudenberg, K. A Good Operative Result from Transplantation of the Flexor Digitorum Sublimis V. In Opponents Aplasia of the Thumb. A Review of the Methods (Guter Operationserfolg durch Transplantation des Flexor digitorum sublimis V. bei Opponentenaplasie des Daumens. Uebersicht ueber die Methoden). Arch f. orthop. Chir., 1935, 35: 675.

The case reported was that of a twelve-year old boy with atrophy of the thenar eminence and complete loss of the power of apposition. After the super-

flexor tendons of the fourth and fifth fingers had been sutured to each other as far distally as possible, the flexor tendon of the fifth finger was severed proximally to this junction, drawn through a tunnel to the first metacarpal, and sutured at that point to a peritendal bridge on the radial border. Twelve years later the result was found excellent. The patient could approximate the tips of the thumb and fourth finger and, in spite of general weakness of the arm, was able to do hard farm labor.

In three cases Krusenbergh obtained a good result by using the radial half of the superficial flexor tendon of the middle finger to replace the paralyzed opponens. Altken and Nilsson employed the palmaris longus and the distal end of the extensor pollicis brevis. Huber and Nicolaysen used the abductor of the fifth finger. Well called attention to the fact that when tendons which run through the hollow of the palm are used the power of apposition in time becomes diminished. Bannell reported that his results with methods of this type were unsatisfactory until he provided for fixation of the tendon on the ulnar side. Well had one failure with the Krusenbergh method. He recommended the procedure of Cooke, in which the extensor digiti quinti is brought around the ulnar margin to the first metacarpal. Schanz employed the extensor of the middle finger bringing it through to the hollow of the palm between the third and fourth metacarpals.

The authors believe that, aside from the adaptability of the patient, small differences of technique may explain the variation in the results. They regard it as advisable to employ one of the tendons running along the ulnar region and to secure this tendon in its course by means of a sling.

(VON DANKELMAN) HARRY A. SALEMAK, M.D.

Whitelson, T. F., and Clark, M. M.: The Gill Bone-Block Operation for Foot Drop. *J Am M Ass* 1936 vol 447.

The authors report on twenty-three cases of foot drop in which the Gill bone block was done with

excellent results. This operation consists of the insertion of a bony wedge into the posterior articular surface of the astragalus.

The article is illustrated with roentgenograms.
PAUL C. COLONNA, M.D.

FRACTURES AND DISLOCATIONS

O'Shea, M. G.: Fractures of the Humerus. *Ann Surg* 1934, 103: 397.

The author presents an analysis of 800 consecutive cases of fracture of the humerus entering Harlem Hospital, New York, in the three years ending November 1933. Only 167 of the patients remained long enough to be treated.

The left humerus was fractured in 64 per cent of the cases. It was found that the location of the fracture varied with the age of the patient, the older the patient the higher the level of the fracture. Of 11 compound fractures treated, 11 healed cleanly. Sixteen nerve injuries were observed, 13 of the radial nerve.

In cases of shaft fracture it was found that the period of hospitalization was shortest when Spauld's whiplash traction in a Thomas arm splint was applied over a plaster harness; that balanced traction was less satisfactory, and the skeletal traction, used in 3 cases, was unsatisfactory when the wire was inserted in the ulna. Only 1 case of the series showed no union when last observed, two months after the injury.

In fracture dislocations of the humeral head (4 cases), open operation with removal of the head was necessary. Open operation was done also in 3 cases in which closed methods were unsatisfactory.

Of the 167 cases, satisfactory results were obtained in 90 per cent. The incidence of good results was highest in fractures of the lower extremity of the bone. Of 106 patients followed up, 68.7 per cent had satisfactory functional results. The incidence of good functional results was highest in cases of fractures of the shaft.

BARBARA B. STIMSON, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Klossner, A R. Peace-Time Injuries of the Large Blood Vessels of the Extremities (Ueber die Verletzungen der grossen Extremitätenblutgefässe) *Acta Soc. med. Fennicae Duodecim*, 1935, 21 Fasc. 3

To determine the mortality of injuries of the large blood vessels of the extremities sustained in civil life, the author reviewed 104 such injuries occurring in or near Helsingfors. The injuries involved the subclavian, axillary, brachial, iliac, femoral, and popliteal vessels. Ninety-three (89.4 per cent) were fresh injuries, 9 (8.6 per cent) were hematomas, and 2 (1.9 per cent) were aneurysms. Seventy-two (69.2 per cent) were caused by sharp weapons, 26 (25.0 per cent) were due to bullets, and 6 (5.8 per cent) were lesions of other types. Fifty (48.1 per cent) were arterial, 22 (21.1 per cent) were venous, and 32 (30.8 per cent) involved both arteries and veins. Fifty-nine (56.2 per cent) occurred in the upper and 45 (43.8 per cent) in the lower extremities.

The total mortality was 38.5 per cent (40 deaths). In 9 cases of injury of subclavian vessels there were 8 deaths, in 24 of injury of axillary vessels, 15 deaths, in 26 of injury of brachial vessels, 3 deaths, in 2 of injury of the iliac vessels, 2 deaths, in 36 of injury of the femoral vessels, 11 deaths, and in 7 of injury of the popliteal vessels, 1 death. Of the 40 persons who died, 24 (60 per cent) were untreated and 16 (40 per cent) died after treatment.

In all of the cases of fresh lesions of the subclavian vessels, the patient survived until treatment could be given. Six of 13 treated injuries of the axillary vessels, 3 of 24 treated injuries of the brachial vessels, 3 of 19 treated injuries of the femoral vessels, and 1 of 5 treated injuries of the popliteal vessels were fatal.

In the cases of hematoma, 1 of 2 injuries of the subclavian vessels, 1 of 3 of the axillary vessels, and 1 of 9 of the femoral vessels were fatal.

Of the 64 persons who survived, 47 were treated while the injury was still fresh, 14 in the stage of hematoma, and 2 in the aneurismal stage.

Because of the small number of cases, the author is unable to decide whether better results are yielded by vessel suture or ligation. He states that until vessel suture is improved, the surgeon must be prepared for gangrene after both of these procedures.

BLOOD, TRANSFUSION

Judine, S S. Transfusion of the Blood of the Cadaver to Human Beings (La transfusion du sang de cadavre aux êtres humains) *Presse méd.*, Par., 1936, 44 68

Judine reports that, after careful experimentation on animals, blood from cadavers has been employed

for transfusion at the Sklifassovsky Institute of Moscow, Russia. As this Institute receives many emergency cases the provision of large quantities of blood for transfusion at short notice is highly necessary. On the other hand, many cadavers of persons killed in accidents or dying suddenly from apoplexy or cardiac failure are received.

In the use of blood from the cadaver, only freshly obtained blood was employed at first, but later it was found that such blood in hermetically sealed containers can be preserved in the ice box for a month without the addition of a preservative and without the loss of any therapeutic properties.

The blood is withdrawn from the cadaver within from six to eight hours after death by opening the jugular vein with the body in the Trendelenburg position. By this method it is obtained only from the inferior and superior vena cava, not from the peripheral or portal circulation. Some of the blood is used for typing, for Wassermann tests, and for bacteriological study. In every instance a careful autopsy is performed. Thus the recipient is protected against disease transmission, especially as only cadavers of persons dying suddenly, usually from accident, are employed.

It has been found that the blood from such cadavers coagulates rapidly at first, but the clot dissolves within an hour or two and coagulation does not occur again. According to the findings of careful biochemical studies, this is explained by fibrinolysis. It is not due to autolysis or dissociation of the protein molecule. There is no increase in the residual nitrogen. Therefore the blood can be preserved and used for transfusion without an anticoagulant.

Up to July 7, 1935, transfusion of blood from the cadaver had been done at the Institute in 924 cases, including cases of hemorrhage of various types, traumatic and surgical shock, blood diseases, and sepsis. Its therapeutic effects have been every way equal to those obtained by transfusion from living subjects. Reactions have been slight and fewer in number than after the usual methods of transfusion. In addition to the use of cadaver blood in the Institute, cadaver blood has been sent to other hospitals on more than 100 occasions. ALICE M. MEYERS

LYMPH GLANDS AND LYMPHATIC VESSELS

Wiseman, B K., Doan, C A., and Erf, L A. A Fundamental, Reciprocal Relationship Between Myeloid and Lymphoid Tissues. Its Recognition, Nature, and Importance as Revealed by Experimental and Clinical Studies. *J Am Med Ass*, 1936, 106 609

The authors believe that the origin of many abnormal states may be traced to derangements of

physiological processes, particularly disturbances of physiological equilibrium. The purpose of this article is to present experimental and clinical evidence indicating strongly the existence of a fundamental physiological reciprocal relationship between myeloid and lymphoid tissues.

Experiments reported previously from the authors' laboratory demonstrated the effectiveness of nucleic acid derivatives in promoting myelopoiesis and of native proteins in inducing lymphopoiesis. A specific experiment showed that the repeated injection of sodium nucleinate into a rabbit produced an increase in the neutrophilic granulocytes while, at the same time, there was a reciprocal fall in the total lymphocyte count. Autopsy disclosed a myeloid hyperplasia in the bone marrow, spleen, and kidney and marked atrophy of the lymph nodes. On the other hand, the injection of egg albumen into a rabbit produced an increase in the lymphocytes and a corresponding decrease in the neutrophilic granulocytes. In this case, autopsy revealed hypoplasia of the bone marrow in the long bones and hyperplasia of lymphoid tissue in the lymph glands and spleen. Accordingly, it appears that there is a constant physiological balance between the myeloid and lymphoid tissues.

The authors call attention to this law of reciprocal hematopoiesis in certain clinical cases. In infectious mononucleosis, a study of the blood cells shows quite regularly that high values for the lymphocytes are accompanied by low relative and absolute values for the granulocytes. It is thought that such a relation-

ship may at times be associated with hypoplastic anemia. The authors report a case in which autopsy showed adenopathy and diffuse lymphoid hyperplasia along with atrophy of the bone marrow. They suggest that the occasional benefit noted in hypoplastic anemia following splenectomy may be related to the removal of lymphoid substance.

The reciprocal relationship between lymphoid and myeloid tissues in the leukemias is pointed out. Attention is called to the general depression of bone-marrow function in lymphatic leukemia. Although this is generally believed to be due to mechanical replacement, the authors observed a case of hypoplastic leukemia in which the bone marrow was hypoplastic and without significant lymphoid infiltration in the areas studied. In myelogenous leukemia there is usually a swelling of the lymphoid structures and these structures predominantly contain myeloid cells. The authors report a case of myelogenous leukemia in which the lymphoid structures showed marked atrophy. This is comparable to the nodes of animals with a nucleinate-induced leucocytosis.

In commenting on the possible causes of the reciprocal phenomena between lymphoid and myeloid cells, the authors state that there may be a substance having stimulating effects in one location and inhibiting effects in another for the common stem cell, but more likely is the hypothesis of a physiological cellular equilibrium. The mechanism controlling this equilibrium is only a matter for speculation at this time. Howard L. Auer, M.D.

SURGICAL TECHNIQUE

ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Cuthbertson, D P Further Observations on the Disturbance of Metabolism Caused by Injury
Brit J Surg, 1936, 23 505

The author has previously called attention to the marked loss of body nitrogen, sulphur, and phosphorus occurring in the urine of otherwise healthy individuals who suffer moderate or serious traumatic injury. This loss begins within a day or two after the injury, reaches the maximum within ten days, and then slowly declines. The changes are ascribed to catabolism of the reserves of the organism for maintenance and repair.

This report is concerned particularly with the dietary requirements of persons who have sustained an injury. Eighteen patients with fracture of one or more long bones and one with laceration of the tendon of Achilles from direct violence were studied. It was generally found that after about two weeks of a high-protein diet, the appetite failed and the ingestion of the required amount became impossible. Preliminary experiments were carried out to determine whether the loss of body nitrogen could be checked by such procedures as daily massage, the administration of meat extractives or of cystine or glycine and hydrolysate of mixed α tissues, or the addition of large amounts of proteins such as gelatin or sodium caseinate to diets with a low first-class protein content and a generally low caloric value.

These studies indicate that high caloric diets very rich in first-class protein modify considerably the marked loss of body protein which normally occurs after fractures of the long bones resulting from direct violence. However, at the height of the catabolic disturbance, even such diets fail to prevent this loss. It is recommended that injured patients be given diets with a high protein and caloric content. Measures such as massage and manipulation, the administration of meat extractives, glycine, hydrolysate of mixed α tissues, gelatin, and sodium caseinate, and diets of high caloric value but average protein content similarly failed to stem the loss of protein and generally proved less successful in decreasing the drain on the reserves of the body. The catabolic disturbance is characterized by an increase in the basal consumption of oxygen with an accompanying rise in the pulse rate and temperature, a parallel rise in the urinary output of nitrogen, sulphur, and phosphorus, and a less marked rise in the output of potassium. The creatinuria which parallels the rise in total nitrogen is associated with little change in the creatinine excretion. Two controls who received high caloric diets rich in first-class protein exhibited nitrogen equilibrium. WALTER H NADLER MD

Ramon, G, Bocage, A, Mercier, P, and Richou, R
Staphylococcus Anatoxin in the Treatment of Staphylococcal Affections (L'anatoxine staphylococcique et son emploi dans le traitement des affections dues au staphylocoque) *Presse méd*, Par, 1936, 44 185

On the basis of the evidence now accumulating as to the rôle of the specific exotoxins in the recurrent or chronic staphylococcal infections, and the success obtained in immunizing against diphtheria with toxoid (anatoxin), Ramon and his associates prepared a toxoid from the staphylococcus and have treated a series of cases with this material. The toxoid is prepared by adding formalin to the heated filtrate of a broth culture of staphylococci selected for their tendency to produce toxin. While retaining no toxic properties, the toxoid-containing filtrate does not lose all of its antigenic character. In the cases of all except hypersensitive subjects, the treatment consists of injections of 0.5, 1.0, and 2.0 c cm at intervals of one week, a total of three doses. Mild local reactions may occur at the site of injection, and usually there is some focal congestion for a day or two around the lesions present. Serious reactions of an allergic nature have not been observed. While the material might be freed of the irritants which produce the mild reactions, it is believed that too much purification might interfere with the therapeutic results.

This report is based on the treatment of 250 cases by the authors and about 250 cases by other physicians using the same material. Of the authors' cases, 131 were cases of furunculosis. In this group the results were almost uniformly successful. Some of the patients who had suffered from the condition for more than ten years were cured by short courses of toxoid treatment. In no case, however, has the follow-up period exceeded eighteen months. Of the 7 cases in which the results were unsatisfactory, 3 were cases of diabetes. When recurrences have developed after a free period the lesions have been much more mild than they were formerly and have responded rapidly to similar treatment. The results in cases of syphilis and other pustular dermatoses have also been encouraging. The practitioners to whom toxoid has been given for use in their individual practices have been enthusiastic about the results obtained. A selected group of the cases is tabulated.

A small number of cases of osteomyelitis have been treated by injections of toxoid with moderately encouraging results, but as yet the authors are unwilling to render a final opinion as to the value of the toxoid treatment for non-cutaneous lesions. There is some evidence that, under the influence of toxoid therapy, bone lesions tend to spread less widely and with less bone destruction. Although from a theo-

ritical standpoint there is no reason to expect staphylococcal bacteremia to respond to toxoid, there being no antibacterial component, 2 cases of its dramatically successful case have been reported to the authors by other physicians.

JOHN LOCKWOOD, M.D.

MacNeal, W. J., and Frimble, F. C.: Bacteriophage Service to Patients with Staphylococcus Septicemia. One Hundred Patients with Staphylococcus Septicemia Receiving Bacteriophage Service. *Am J Med Sc* 1934, 101: 170, 70.

In the first of these two articles the authors describe in some detail the technique of the administration of bacteriophage to patients with staphylococcal bacteremia. Only cases with positive blood cultures are considered.

The cultures are obtained by making agar pour plates with clotted blood and incubating them for from twenty-four to seventy-two hours. This method provides a quantitative estimate of the organisms per cubic centimeter of blood. A specific phage is obtained by propagating a mixture of stock phages on the strain of staphylococcus so isolated, but pending preparation of this phage the stock material is used in order to provide immediate therapy.

The treatment is first directed at the local lesion. The phage is applied on the surface and by introduction into surrounding lymph spaces with a fine needle. The direct attack on the bacteremia is made by administering graduated doses of bacteriophage intravenously at intervals of from forty-five to sixty minutes until a definite chill is produced with the temperature running up to from 101 to 102 degrees F. The first dose is usually 0.5 c.c. The quantity is then gradually increased to 10 c.c. for the tenth dose and then increased more rapidly until a total dose of as much as 300 c.c. has been given.

It is believed that the best therapeutic results depend upon the production of the chill, formidable though it often is. After the chill the temperature returns to normal and clinical improvement may be dramatic. The typical shock reaction comes when the "amount of bacteriophage injected has the proper quantitative relation to the bacteria in the blood stream. Chills will not occur when the blood stream is sterile or when the infection is so massive that the bacteriophage is overwhelmed. When recovery ensues, the phage medication is continued in subcutaneous doses for several months as prophylaxis against recurrence of the infection from a smoldering focus.

The second article summarizes the results of the described treatment in 100 consecutive cases of staphylococcal bacteremia. It is admitted that the evidence of bacteremia in some of the cases was purely clinical. Of the 100 patients, 35 survived and 75 died. The survival rate was highest in males between fifteen and thirty years of age. Most of the cases in this series were not under the immediate observation of the authors but under that of physicians to whom, at their request, the phage was sup-

plied by the authors with recommendations as to its administration. Abstracts of the histories of the 35 successfully treated cases and of some of the fatal cases are presented.

It is believed that the survival rate incident to phage therapy is considerably higher than any authentic recorded rate for a series of cases not so treated. Among the fatal cases cited there were 7 in which the phage was either not used or used too late for a fair test. These cases served, in some measure, as controls. The authors are of the opinion that in 23 of the 35 cases with survival there was definite benefit attributable to the bacteriophage and "in several of these the effect may properly be said to have been life-saving." JOHN LOCKWOOD, M.D.

ANESTHESIA

Waters, R. M.: Carbon Dioxide Absorption Technique in Anesthesia. *Ann Surg* 1934, 103: 37.

In 1916 it was shown that if the carbon dioxide is absorbed in alkali, animals can be confined indefinitely in a closed space containing an anesthetic mixture. The only necessary addition to the mixture is sufficient oxygen to replace that used out of the mixture as it diffuses into the blood from the animal's alveoli. No oxidation of the common anesthetic agents occurs within the body and practically no excretion besides that occurring through the lungs.

This principle of carbon dioxide absorption is now being applied clinically in anesthesia apparatus. Only the mechanical details vary. Two widely different mechanical solutions of the problem of the construction of a closed respiratory system are obvious. The author describes these.

The everyday use of such a closed technique in the operating room is not arduous but pleasant, convenient, and economical. EMMETT KURTZ, M.D.

Ernst, U. H.: Anesthetic Emergencies. *Nes England J Med* 1934, 11: 463.

The author classifies anesthetic emergencies as respiratory, circulatory, and miscellaneous.

Respiratory difficulties may be due to mechanical obstruction of respiration, disturbances of the respiratory center or miscellaneous disturbances such as occur when the pleura is opened or during the course of an operation on the neck. An opening is inadvertently made in the trachea.

Circulatory emergencies may be due to cardiac failure or circulatory failure. The latter are due in turn to loss of blood, surgical trauma, or spinal anesthesia.

Among the miscellaneous emergencies are inadequacy of spinal anesthesia, nausea, retching, vomiting, too high a level of spinal anesthesia, convulsions and the breaking off of lumbar puncture needles during the administration of a spinal anesthetic.

Mechanical obstructions to respiration include laryngeal spasm, external pressure on the trachea.

as in intrathoracic goiter, and minor obstructions due to dropping back of the jaw or tongue, compression of the lips, or flutter of the soft palate. Laryngeal spasm is usually relieved by the administration of a high concentration of oxygen with a small amount of carbon dioxide. Occasionally, the introduction of an intratracheal catheter may be necessary. In cases of tracheal compression an intratracheal catheter should be introduced before the operation is begun. The minor types of obstruction to respiration, such as those due to relaxation of the tongue or compression of the lips, are relieved as a rule by the use of the nasal or oral breathing tube or extension of the chin.

Disturbances of the respiratory center result from drug depression due to too heavy pre-operative medication, paralysis of the respiratory center due to over-dosage with an anesthetic, and, at times, a too high level of spinal anesthesia. As a rule, respiratory depression due to too heavy pre-operative medication is readily overcome by the administration of small amounts of carbon dioxide for a short time. In respiratory depression due to over-dosage with an anesthetic, further administration of the anesthetic agent should be stopped at once and oxygen and carbon dioxide administered by means of artificial respiration. Post-operative respiratory depression is usually greatly shortened by the administration of from 1 to 5 ccm of coramine intravenously. Respiratory depression due to spinal anesthesia requires the administration of oxygen by artificial respiration with a rubber breathing bag. Difficulties due to opening of the pleura are overcome by artificial respiration induced by pressure on the breathing bag if the inhalation anesthesia is of the closed type. All intrapleural operations are best done under intratracheal anesthesia because under anesthesia of this type the dangers of the open pleura are reduced. Inadvertent opening of the trachea calls for the immediate institution of positive intratracheal pressure in order to prevent aspiration of blood into the air passages while the tracheal opening is being closed.

Circulatory failure due to failure of the heart should be treated by artificial respiration with oxygen, the use of a circulation-stimulating drug such as ephedrine or adrenalin, and a moderate Trendelenburg position. Circulatory failure due to loss of blood or surgical trauma should be treated by the intravenous administration of 10 per cent glucose, a moderate Trendelenburg position, the use of coramine or caffeine, and the application of external heat. Circulatory depression due to spinal anesthesia is combated by the use of a moderate

Trendelenburg position, the administration of a mixture of oxygen and carbon dioxide (95 and 5 per cent, or 90 and 10 per cent) and the use of vaso-constricting drugs such as ephedrine or adrenalin. Severe falls in the blood pressure resulting from the administration of a spinal anesthetic can usually be prevented by the administration of 50 mgm of ephedrine from five to ten minutes before the administration of the anesthetic.

Inadequacy of spinal anesthesia is overcome by the supplementary inhalation of cyclopropane. Nausea, retching, and vomiting occurring under spinal anesthesia are treated by the inhalation of oxygen or cyclopropane if necessary. Convulsions are infrequent and usually occur during local anesthesia if the anesthetic agent (usually novocain) is inadvertently injected into a vein. They are usually relieved by the immediate intravenous administration of from 3 to 12 gr of sodium amytal or from $1\frac{1}{4}$ to 3 gr of nembutal.

ARTHUR S W TOUROFF, M D

Harrison, P W Postanesthetic Headache *Arch Surg*, 1936, 32 99

Headache has occurred frequently after spinal anesthesia and sometimes has been severe. The dangers from a poorly induced general anesthesia are much more serious than the discomfort of an occasional severe headache, but when the comparison is made with the effects of ether expertly given, the headache may be sufficient to throw the whole method of spinal anesthesia into the discard. On the other hand, if the postanesthetic headache can be eliminated for operations below the umbilicus, spinal anesthesia stands in a class by itself.

That headache is not due to leakage from needle puncture, as was formally thought, is evident from the fact that it still occurs although much finer and more delicate needles are now used. Postanesthetic headache will develop if the injected solution is irritating. The water may be irritating or the skin may be dripping with iodine. Any solution injected into the subarachnoid space should have a pH above 7. A solution which is either hypertonic or hypotonic is irritating. The temperature of the solution is also important, cold solutions are irritating.

Procaine hydrochloride is the least irritating of suitable drugs and in a concentration of 5.48 is isotonic.

By means of the intravenous injection of 4 oz of a 5 per cent solution of dextrose in a physiological solution of sodium chloride immediately after the operation, headache is largely prevented even in ambulatory patients. HOWARD A. MCKNIGHT, M D

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Arce, F., Arce, M., and Ochando, J. C.: Considerations on the Roentgen Exploration of the Pharyngolaryngeal Region (Consideraciones sobre la exploración Roentgen de la región faringolaringea). *Medicina Madrid*, 1935, 6: 441.

A complete X-ray examination of the pharyngolaryngeal region should be made in all cases in which tumors, tuberculosis, or syphilis is suspected. The information thereby obtained may be of great value in localizing and in determining the extent of the process. Repetition of such examinations will show the evolution of the disease process and the effects of treatment.

X-ray examinations should not be regarded as a substitute for laryngoscopy but should be made in conjunction with it. Lateral views should be obtained during the swallowing of an opaque sodium.

For the interpretation of abnormal findings it is necessary to be familiar with the normal roentgen appearance of the region, especially the process of ossification in the laryngeal cartilages.

WILLIAM R. MERRIS, M.D.

Kelly, J. F.: The Present Status of the X Ray as an Aid in the Treatment of Gas Gangrene. *Radiology* 1935, 30: 4.

This report is a supplement to an article on the subject written by the author in December, 1931. In the latter Kelly reported good results following low voltage irradiation of the affected area in six cases of gas gangrene of the extremities. In only two of these cases was amputation necessary. In two cases with involvement of the trunk death resulted despite the treatment. In this article Kelly reports forty cases of gas gangrene, some of which were his own and others of which he learned of by correspondence. The roentgen therapeutic factors in the original series were a 5 in gap 5 ma. a 25 in focal distance a 0.5-mm aluminum filter and an exposure of three minutes morning and evening for three days. The treatment factors in the series reported in this article are not given, but the author concludes that from 90 to 100 kv should be used in treating the extremities and from 130 to 150 kv in treating the trunk, 200 r units being given twice daily.

The results in the second series of cases differed from those in the first series in that eight patients with involvement of the trunk survived and in twenty-eight cases with involvement of the extremities there was a mortality of only 18 per cent. The mortality in this group of cases treated with the roentgen rays was therefore considerably lower than the mortality in three series of cases reported by

others in which other therapeutic methods were used and the mortality was 49.7, 48.5 and 30 per cent respectively. Kelly explains the beneficial results on the basis of work done at Stanford University which indicated that hydrogen peroxide is formed in irradiated tissue. He recommends that roentgen therapy be given however hopeless the case may seem. He condemns amputation for gas gangrene.
HASOLD C. OCHANDO, M.D.

Arneson, A. N.: Roentgen Irradiation in the Treatment of Malignant Diseases. *South M J* 1935, 39: 145.

The author considers a few of the more important factors influencing the technique and the amount of irradiation given in the roentgen treatment of malignant disease. He emphasizes that it is always desirable to deliver the necessary dose with as little damage to the normal tissues as is consistent with adequate irradiation of the tumor bearing region. A very good procedure is the use of several fields by cross-firing the tumor from various angles. In the irradiation of cervical cancer for example, a greater depth dose and a more adequate distribution of the irradiation are obtained by employing six smaller fields (two on the anterior surface two on the posterior surface, and one on each lateral aspect of the pelvis) than by using only two large fields (one on the anterior surface and one on the posterior surface). These advantages are shown by two isodose curves.

Broadly speaking, the methods by which external irradiation is administered may be divided into three fundamental types. These are:

1 The massive dose method, in which the entire dose is given in a single exposure and the treatment is repeated one or two times, usually at intervals of six weeks.

2 The saturation dose method, in which a certain irradiation effect already produced in the tissues is maintained for a period of time by the addition of small doses. Each additional dose is intended to compensate for the irradiation loss due to recovery of the tissues since the last treatment. However the rather conflicting results reported in the literature demonstrate the difficulty of maintaining accuracy in an attempt to keep irradiated tissues in a state of saturation.

3 The divided or fractional dose method of Coitard, in which multiple exposures are delivered to the various irradiated areas over a protracted period of time. Exposures are usually given to one or two areas each day for a period of from two to three weeks until a total dose is reached which may produce a skin reaction varying from a mild erythema to severe damage.

To illustrate the changes that can be noted clinically in skin and tumor tissue, the author briefly discusses three cases: one of adult lingual cancer, one of adult laryngeal cancer, and one of transitional cancer with metastasis to the neck. Despite the fact that both the first and third patients died within a short time after the treatment, the clinical degree of regression served as a criterion of the effect of different amounts of irradiation. In all three cases, the treatment was delivered over a period of from three to four weeks. In the first and second cases the total dose was eight threshold erythema doses, and in the third case, because of the greater radiosensitivity, from two to four threshold erythema doses. In each case there was a marked degree of regression and the doses compared favorably with what is known to amount to lethal doses for similar types of lesions.

T. I. LUCUTIA, M.D.

Regen, E. M., and Wilkins, W. E. The Effect of Large Doses of X-Rays on the Growth of Young Bone. *J. Bone & Joint Surg.*, 1936, 18, 61.

The objects of the study reported were to determine (1) whether bone growth can be completely stopped by X-rays without destruction of the tissues, (2) whether any degree of renewed growth takes place before maturity of the skeleton if complete inhibition occurs, and (3) whether evidence of an influence on the growth of untreated homologous bones of the same animal can be detected by careful measurements.

The foreleg of each of a group of young rabbits was treated with a heavy dose of roentgen rays and the growth of both forelegs of these animals and of control animals were followed up to adult life by measurements of roentgenograms made at regular intervals under standardized conditions. The experiments are described in detail and the results shown by serial roentgenograms of one of the animals. In addition, the effects are plotted in the form of curves which show the comparative growth of the bones of the irradiated extremities with that of the non-irradiated extremity of the same animal and the extremities of the controls.

It was demonstrated that bone growth, as judged by length, can be completely stopped by exposure to a sufficient dose of roentgen rays, and that up to maturity of the skeleton it does not recur. According to the growth of homologous bones of the opposite side, there was no generalized effect on the untreated bones in the experimental animals. With regard to destruction of the tissues from the doses given (2,600 r) the authors state that a reaction in the skin with epilation and slight ulceration was noted in every case but was followed by healing and re-appearance of the hair in a few months. After the roentgenograms were made, several of the treated animals were sacrificed and the tissues of the forelegs carefully examined. The gross appearance of the muscles and bones seemed to be normal. Photomicrographs of sections made of the normal

and treated bones and the treated muscles are presented.

ADOLPH HARTUNG, M.D.

RADIUM

Souttar, H. S. Recent Advances in Radium Therapy. *Brit. M. J.*, 1936, 1, 401.

After considering in a general way the principles of radium therapy and the important problem of uniform field distribution the author discusses the various methods of clinical application incorporating the more recent technical advances. These methods include the use of the following agents:

Needles. Needles are in reality small tubes from 1.5 to 3 mm in diameter with a cavity occupying their entire length except the eye and point. Their walls are made at least 0.5 mm thick and usually of platinum to absorb all of the beta and most of the soft gamma rays. The needles are inserted in the growing edge of the tumor or encased within the tumor in a manner to provide, through cross-fire, an irradiation field of fair uniformity.

Radon seeds. Radon seeds are tiny glass or gold tubes about 1 mm in diameter and from 5 to 10 mm in length which contain small amounts of radium emanation. Their physical effect is at first the same as that of radium needles, but in time the emanation decays and therefore removal of the seeds after treatment often appears unnecessary. Some time ago the author devised a gun which permits the interstitial introduction of as many as 100 seeds in a very few minutes with remarkable accuracy.

Plaques and moulds. By mounting the radium sources at some distance from the surface on plaques or moulds a more uniform distribution of the irradiation may be obtained than in the use of needles or seeds. The uniformity of the irradiation is further increased if the amount of radium to be used is divided into two equal portions, one of which is distributed uniformly over the surface of the plaque and the other arranged around its margin. The amount of radium needed for the intensity required at the surface can be calculated easily with the aid of a simple instrument which the author devised for the purpose.

Beam irradiation. A very uniform field may be obtained by an arrangement whereby a large amount of radium is made to act from a greater distance in the same manner as an X-ray source, a method called by the author "beam irradiation." In research in which Souttar is at present collaborating, 5 gm. of radium are used in such an arrangement. The gamma rays emerge through a circular aperture 5 cm in diameter, and the remaining part of the apparatus is surrounded by a huge mass of lead for the protection of persons in the neighborhood of the unit. A very interesting innovation in the arrangement is an automatic pneumatic mechanism which permits transference of the radium from the apparatus to the safe and from the safe to the apparatus by a flexible pneumatic tube, the operating personnel being therefore further protected by the elimina-

tion of all risk of contact. The lighting up of a small lamp signals the arrival of the radium at its proper place.

A short beam unit. The short beam unit is based on the same principle of pneumatic transference as the unit for beam irradiation but is of smaller dimensions and constructed so that it may be introduced into the mouth and the aperture placed in contact, for example, with the tonsil. Because of the lesser distance a smaller amount of radium is required. From 1 gm. of radium it is possible to obtain an effect almost equal to that of the 5-gm. unit, although, of course, over a smaller area.

In conclusion the author states that as radium therapy is developing so rapidly and becoming so important in cancer treatment the combined efforts of the surgeon, radiologist, biologist, and physicist are necessary to insure success.

T. LEUCURIA, M.D.

Bowling, H. H., and Fricke, R. E.: The Radium Treatment of Postoperative Parotitis. *Radiology* 1936, 26, 37.

Bowling and Fricke have reviewed all cases of post-operative parotitis which were treated with radium at the Mayo Clinic in the period from 1909 to 1934, inclusive a total of 184. The patients ranged in age from seven to seventy-six years. Their average age was fifty. There were 95 males and 89 females.

The technique of treatment consists in giving slightly more than 50 per cent of an erythema dose with radium surface blocks. A universal tube containing about 50 mc. of radon filtered through 3 mm. of lead as well as the usual 1 mm. of bismuth and 0.5 mm. of silver is placed at a distance of 2.5 cm. from the skin on a wooden block. The base of the block is 3 cm. square. From 2 to 4 blocks are applied at a time. If the area of infiltration is too large to be covered with 4 of the described blocks a second application of 4 similar blocks is placed around the

periphery of the first. Each application is of eight hours' duration.

In the 184 cases reviewed the gross mortality was 22.8 per cent. If the 6 deaths of moribund patients which occurred before the treatment could be more than started are excluded, the mortality was 19.6 per cent. This compares with the mortality of 38 per cent in the combined American statistics quoted by Green. Most of the deaths are due to parotitis plus other serious complications. Of those in the authors' series of cases, only 6 per cent were due to parotitis alone. The conclusions reached from the authors' cases substantiate those of Rankin and Palmer. The incidence of postoperative parotitis and the mortality are highest following colonic surgery. The more serious the operation, the higher the mortality following the development of parotitis. Practically any surgical procedure may be followed by acute parotitis. The condition is usually associated with other complications. Surgical incision and drainage should be carried out when definite fluctuation is noted.

From their experience in the cases reviewed the authors conclude that radium should be applied at the earliest possible moment after the diagnosis is made. Only a moderate dosage is necessary. The only supplementary treatment necessary is the application of warm moist dressings or packs and general nursing care. Within a few days the swelling gradually subsides and the condition becomes cured. If regression does not occur in a few days or the swelling increases, a second application of radium over the same area, with a lower dosage is often successful. Suppuration is usually aborted by radium treatment, but when it occurs surgical incision and drainage are indicated. Bowling and Fricke have seen no detrimental effects from the treatment. They believe that there are no contra-indications to the described radium treatment for this seriously ill group of patients.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Chown, B. Renal Rickets and Dwarfism. A Pituitary Disease. *Brit J Surg*, 1936, 23: 552

The author reports the cases of two sisters who had birth deformities like those of severe rickets. In both, the calcium content of the blood was increased, but the phosphate content was normal or slightly reduced without discernible progressive decalcification of the skeleton. One of the sisters died at the age of three months and the other at the age of six months. Both had early pathological changes in the kidneys which would have led to chronic nephritis.

At autopsy, only two minute parathyroid glands were found in each case although a careful search was made. In neither was there a parathyroid tumor or hyperplasia. In the first case serial sections of the pituitary were not obtained, the available sections were histologically normal. In the second case serial sections proved the presence of hemiagenesis of the partes posterior et intermedia. Both thyroids were histologically normal, but the gland in the second case had small, bilateral accessory lobes. In the first case the thymus was normal, in the second it weighed 7 gm. The ovaries, adrenal, liver, and pancreas were normal. The kidneys showed the same types of lesions in both cases. In lymphatics accompanying tubules there were deposits of calcium salts alone or with a hematocilin staining material. As the deposits became larger they pushed in the wall of the tubule, obstructing it and breaking it down. The examination disclosed also low grade inflammation of the tubules, draining inflammatory cells, albumin, and debris.

The author believes that these two infants were suffering, not from congenital osteitis fibrosa cystica, but from the disease variously called "renal rickets," "dwarfism," or "infantilism." He subscribes to the view that renal rickets is primarily a pituitary manifestation which, like any pituitary disease, may have certain polyglandular variants.

The nephritis can be explained as the result of calcium and phosphaturia. If the theory is correct that a lesion of the pituitary-diencephalic mechanism is the primary cause of "renal rickets," there is hope that substitution therapy may produce normal bone growth and save the kidneys from overwhelming injury.

WALTER H. NADLER, M.D.

Roffo, A. II. The Role of Ultraviolet Rays in the Development of Cancer Provoked by the Sun. *Lancet*, 1936, 230: 472

Of 5,000 patients with cancer attending the Cancer Institute of Buenos Aires, none except 2 or 3 with

tumors developing on nevi or burn scars showed cancer of any part of the skin covered by clothing.

In the face, the parts most often affected are those which are most prominent and exposed. Men are more apt to develop skin cancer than women. The lower incidence of the lesion in women is related to the care women take of their skin, protecting it with powder. Sufferers from epithelioma are generally found to have very white (photosensitive) skin. The author has not seen a single skin cancer in natives, negroes, or mulattoes.

The hyperkeratosis which leads to the epithelioma is dominated by a photodynamic mechanism. For completion of the process the following factors are necessary: the living cell, a sensitizing photodynamic substance, the presence of oxygen, and the rays of the sun. The author ascribes great importance to cholesterol, which is always present in the living protoplasm and plays an active part in cell development. Experiment has shown that cholesterol is present in excess in cancerous tissues, that it is heliotropic, and that it has photo-activity. Moreover, the parts of the face which are most exposed to the sun and in which epitheliomas are most frequent have the highest content of cholesterol.

In experiments on white rats carried out by the author, tumors of different histopathogenesis (epitheliomas and spindle-cell sarcomas) developed in unprotected parts (ears and ocular conjunctiva) under the influence of the total sun rays or under that of ultraviolet rays with a wave length of from 1,800 to 3,400 Å. The percentage of the animals developing the tumors was very high, and both sarcoma and epithelioma were sometimes observed in the same animal.

JOSEPH K. NARAT, M.D.

Okamoto, S. A Biological Study of the Effect of the Toxins of Malignant Tumors on the Suprarenals, Lymphatic System, and Other Organs. IV. The Effect of Toxins of Malignant Tumors on the Lymphatic Glands, Especially on Their New Growth. V. The Action of the Toxins of Malignant Tumors on the Lymphatic Glands, with Special Reference to the Function of the Reticulo-Endothelial System. VI. The Action of the Toxins of Malignant Tumors on the Cardiac and Vascular Systems. VII. Extracts of Malignant Tumors and Organs of Non-Striated Muscle. *Jap J Obst & Gynec*, 1935, 18: 424

An alcoholic extract of malignant tumor—human uterine cancer and rabbit sarcoma—attacked chiefly the intrafollicular tissue of the lymphatic glands. It also caused a swelling and proliferation of the reticulo-endothelium of the lymphatic glands and spleen. The change produced in the lymphatic glands and spleen by the extract corresponded to

that seen in the early stage of the growth of malignant tumors. No new growth of lymphatic glands was produced in mature rabbits by the extract. The injection of the filtrate of fowl sarcoma into the peripheral lymphatic vessels did not cause a proliferation of lymph follicles in the wall of the vessels.

The lymphatic glands decrease the virulence of tumor toxin. This action is diminished by splenectomy but is never completely lost.

Alcoholic extracts of malignant tumors produce disturbances in the heart beat, dilatation of blood vessels, and a decrease in the blood pressure. These effects result from disturbances in the innervation itself. Repeated injections of the extract into rabbits resulted in fatty degeneration of the myocardium, fat deposits in the intima of the aorta, and cellular infiltration around the vasa vasorum. These effects were not produced by injections of extract of rabbit muscle. There is evidently a toxin which originates from the tissue of malignant tumors and affects the heart and blood-vessel walls. This toxin is alcohol soluble.

Extracts of malignant tumor inhibit the movements of isolated intestine of rabbits. This effect is not produced by extracts of rabbit muscle. Extracts of malignant tumor accelerate the movement of the uterus, either isolated or *in vivo*. This effect is produced only slightly by extracts of rabbit muscle. Extracts of malignant tumors seem to be composed of complicated elements. There is no qualitative—only a quantitative—difference between the extracts of uterine cancer and rabbit sarcoma. Extracts of rabbit muscle occasionally have the same effects as the extracts of malignant tumors, but their action is very weak. SAMUEL KARY, M.D.

Meeks, I.: An Immunological Study of Human and Animal Malignant Tumors. I. Demonstration of the Toxin of Sarcomatous Cells by Means of Rat Sarcoma. II. Mechanism of the Action of the Toxin of Sarcoma Letia. III. Properties of the Cellular Toxin of Sarcoma. IV. Demonstration of the Cellular Toxin of Sarcoma by the Use of Rabbit Sarcoma. V. Demonstration of the Toxin of Cancer Cells. VI. Property of the Cellular Toxin of Tumor (II). VII. Property of the Cellular Toxin of Tumor (II). *Jap J Obst & Gynec* 1935 18 458

The idea of resistance and immunity to malignant tumors developed from experiments on transplanted tumors. The experiments may be roughly divided into two classes: (1) the attempt to increase the resistance to a transplanted tumor in the animal body and (2) the serological study of the immune reaction in the narrow sense of the word. Nanta's study was serological as it was concerned with the effect of immune serum on tumors. His experiments and their results are summarized as follows:

1. Rabbit serum immunized with rat sarcoma had the property of destroying the tissues of rat sarcoma.

2. The serum of a rabbit immunized with rat sarcoma was allowed to act on the cultured sar-

comatous cells of a rat. The cellular toxin originated from the dissolution of the protoplasm. Its action was first revealed by atrophy of the projections of the sarcoma cells. Subsequently the connection among the cells was cut off. The immature weak cells in the outer part of the growth were the ones most affected by the action of the immune serum.

3. The antibody of the cellular toxin is present in both the globulin and albumin fractions of the immune serum. It is especially abundant in the albumin.

4. Gelatin plugs were used for immunization. When a drop of immune serum was added to the rabbit sarcoma culture medium, the tissue became necrotic within twenty-four hours. In the control series the sarcoma was not affected.

5. When immune serum was allowed to act on normally growing cancerous cells, the protoplasm of the cells melted, the cancer cells were destroyed and scattered, the granules within the protoplasm fused, and the nuclei stained darkly and were finally destroyed. The cells which were affected by the immune serum showed fatty degeneration as the cardinal reaction. These changes were never produced in the controls, in which normal rabbit serum was used.

6. The sera of rat sarcoma, rabbit sarcoma, and human uterine cancer acted as the cellular toxin upon the cells or tissue of the tumors, the autograft. The autograft of uterine cancer never acted as cellular toxin on the normal tissue of the rabbit and rat. Similarly the autograft of rabbit sarcoma was non-toxic to normal human or rat tissue, and the autograft of rat sarcoma was non-toxic to normal human and rabbit tissue. SAMUEL KARY, M.D.

MacKee, G. M. and Cipofarin, A. G.: Idiopathic Multiple Hemorrhagic Sarcoma (Kaposi). *Am J Cancer* 1936 36

Idiopathic multiple hemorrhagic sarcoma is described by Kaposi in 1873, and is spite of the controversy over nomenclature and classification, the affection is generally known as "Kaposi's sarcoma."

By 1935 about 375 authentic cases had been reported in the literature. The condition is chiefly a disease of males and is most common in the sixth and seventh decades of life. It occurs most frequently in Italians and Southeastern Europeans. Its cause is unknown.

It is characterized by a skin eruption in the form of bluish, bluish-red, or reddish-brown nodules and plaques. The initial lesion may either be a nodule or a plaque, but in some cases both nodules and plaques are present. The lesions may be crowded together forming large and small masses or tumors. They are firm, often silky and rather translucent. Their most common sites are the extremities, but no part of the body surface is exempt. During its course disease becomes bilateral and tends to develop symmetrically. The occurrence of localized and widespread purpura with the formation of nodules and plaques is described. Lymph nodes are often

palpable Enlarged lymph nodes may be involved only by inflammation or show microscopic evidence of Kaposi's sarcoma As a rule the subjective symptoms are slight Autopsies demonstrate that the disease may affect almost every organ in the body

The course of the condition is slow and steadily or intermittently progressive The average course is from five to ten years The disease is caused by an unknown systemic agent that attacks the vascular apparatus, causing chronic hyperplastic inflammation and a granuloma which is indistinguishable from that of a malignant new growth or neoplasm

Röntgen irradiation is the best method of treatment. Arsenic may be of value

GEORGE A. COLLETT, M D

Hanford, J M, and Haagensen, C D Incisional Biopsy *Am J Roentgenol*, 1936, 35 238

The object of biopsy is to obtain from the patient a sufficient amount of unaltered, abnormal tissue and sometimes of adjacent normal tissue to permit all of the analyses desired The factors of importance in the removal of a specimen for thorough analysis may be divided into two groups (1) those that may be harmful to the patient, and (2) those that may be helpful to the examiner for the patient In the first group are included (1) increased local growth, (2) increased spread to regional lymph nodes, and (3) the production of distant metastases, pain, hemorrhage, and infection In the second group is the obtaining of an unaltered piece of tissue of adequate size and shape from a selected site The scalpel is without question the best instrument for providing the best specimen for pathological examination

The theoretical serious dangers of incisional biopsy are pressure, the trauma incident to the control of bleeding, the opening of lymph and blood vessels and of tissue spaces, the forcing of cancer cells into these structures by the knife, the introduction of infecting organisms, and the stimulation of increased local growth If the bed of the incisional biopsy is immediately coagulated by a chemical or by the coagulating current, the ultimate results may be the same as those of the use of the high-frequency tip or loop for removal of the specimen Incisional biopsy not only permits a better surgical technique, but also provides a better specimen Another outstanding advantage of the knife, especially in breast cancer, is the peculiar sensation transmitted by the knife to the surgeon because of the hard texture so characteristic of the disease In general, the total mass damage to the tissue left behind is much less after removal with the knife than after removal with the high-frequency current These conclusions are supported by theoretical considerations, practical experience, the lack of scientific evidence in favor of the high-frequency current, and increasing evidence that incisional biopsy does not produce serious harm

The most difficult task in the diagnosis is to be sure that small early cancers are not missed Tumors of the breast afford a good example of the problem In cases of such neoplasms, aspiration biopsy, although commonly employed, is unsafe in three types of lesions The first is the small carcinoma of the breast, in which it is unlikely that an aspirating needle will find the lesion Moreover, aspiration of fluid from the tumor may lead the surgeon to believe he is dealing only with a cyst and thus cause him to overlook a small carcinoma which may be associated with the cyst The second type of lesion in which aspiration biopsy is unsafe is the intraductal type of carcinoma, for even if the needle penetrates one of the involved ducts and secures a small group of the cells, the pathologist will perhaps fail to recognize the dangerous character of the lesion because the individual cells are often well differentiated and regular This form of cancer is usually recognized from its general topography, which aspiration biopsy can hardly be expected to reveal The third type of lesion in which aspiration biopsy is inadequate is proliferation of duct epithelium in some forms of chronic mastitis in which the changes are so widespread throughout the breast that a large specimen must be carefully examined before malignancy can be ruled out In these cases also, the topographical relationships are more important than the appearance of individual cells

In attempts to estimate the degree of malignancy as well as the radiosensitivity of tumors, the prime requisite is an ample block of undamaged tissue which may be properly fixed This cannot be obtained by aspiration because the cells are crushed and their relationships disturbed Neither can it be obtained by endotherm biopsy because the dehydration which takes place in the tissue causes shrinkage and to a considerable extent destroys the fine details of the cell structure

ARTHUR S W TOUOFF, M D

DUCTLESS GLANDS

Thompson, W O, Taylor, S G, III, Thompson, P K., Nadler, S B, and Dickie, L F N The Calorigenic Action of Extracts of the Anterior Lobe of the Pituitary in Man *Endocrinology*, 1936, 20 55

In thirty-two of seventy-nine observations on fifty-nine patients of various types an increase in basal metabolism was noted during the administration of pituitary extracts containing the thyrotropic principle This increase occurred in every group of patients in whom there was any thyroid tissue capable of functioning No rise was noted in four patients with marked myxedema, but in patients with mild or moderate hypothyroidism the rate could be raised to normal, patients with non-toxic goiters could be made toxic, and the condition of patients with exophthalmic goiter could be made worse

The increase in metabolism was always temporary in spite of prolonged treatment, the metabolism eventually returning to its level before treatment or even to a lower level. Second courses of treatment usually but not invariably failed to produce an increase in the metabolism.

In six of eleven patients with exophthalmic goiter the severity of the disease was increased, while in five no definite change was noted. In five of the patients the effect of prolonged treatment could not be observed because an increase in the severity of the disease made it necessary to discontinue the extracts. In three, the metabolism, following an initial rise, dropped to a lower level than it had been initially and in one patient whose metabolism had been stationary for a long period of time during the administration of iodine no initial rise was observed, but the metabolism began to fall toward the normal level shortly after the administration was started.

Thyroid and desiccated thyroid produced well-marked calorogenic effects after patients had become refractory to the pituitary extracts.

These observations show that in disorders of thyroid dysfunction a possible rôle of the pituitary gland should be considered. PAUL STARR, M.D.

Riddle, O., Smith, O. C., Bates, R. W., Morn, C. E. and Lehr, E. L.: The Action of Anterior Pituitary Hormones on the Basal Metabolism of Normal and Hypophysectomized Pigeons and on a Paradoxical Influence of Temperature. *Endocrinology* 9:56 1911.

Forty-seven preparations from the anterior lobe of the pituitary gland were tested for prolactin, thyrotropic, and follicle-stimulating hormone content on approximately 250 immature ring doves. Each of these preparations was repeatedly tested for its action on heat production. The authors conclude that the anterior lobe of the pituitary gland contains a hormone which affects the rate of O_2 consumption in these birds. Prolactin has marked calorogenic action. Unlike the thyrotropic hormone it acts, not through the thyroid, but in a manner now practically unknown. Various and typical preparations of "growth hormone" are found always to contain more or less of both calorogenic hormones—thyrotropic and prolactin. The growth-promoting action probably depends upon the joint and synergistic action of these hormones. Hence there is doubt as to the existence of a separate or individual growth hormone in the anterior lobe of the pituitary gland.

PAUL STARR, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

SURGERY OF THE HEAD AND NECK

Head

- Fractures of the base of the skull T E KLUSHINA and L S KESSEL. *Sovet. khir*, 1935, 6 294
- Report of a case of osteomyelitis of the frontal bone followed by multiple frontal lobe abscesses, recovery H LEWIS. *J Laryngol & Otol*, 1936, 51 107
- Epitheliomas of the face of benign course L DUFOR MENTEL. *Bull. et mém Soc d chirurgiens de Par*, 1935, 27 586
- The medical management of sepsis in sinus thrombosis S E. DORST. *J Med*, Cincinnati, 1936, 16 620
- Some experiences in the surgery of the lateral sinus and internal jugular vein, with a review of fifty cases M F MCCARTHY. *J Med*, Cincinnati, 1936, 16 614
- A papillary adenocystoma with lymph tissue in the parotid gland. SPRETER VON KREUDENSTEIN. *Arch f Klin Chir*, 1935, 182 828
- Habitual temporomandibular dislocation, meniscectomy, cure maintained for three years X J CONTIADES. *Mém l'Acad de chir*, 1936, 62 18
- The management of fractures of the jaws F B MOORE. *HEAD Surg Clin North Am*, 1936, 16 197
- The treatment of fresh fractures of the jaw by the method of Hauptmeyer H. VOORMANN. *Deutsche zahnaerztl Wchnschr*, 1935, p 1120
- The use of screw apparatus in fractures of the jaw J STEINKAMM. *Chirurg*, 1935, 7 820
- Report of a case of osteotomy and arthroplasty for bony ankylosis of the left temporomandibular joint of twenty years' duration. F A LOOP. *J Indiana State M Ass*, 1936 29 70

Eye

- Meanderings in ophthalmology L L MAYER. *J Michigan State M. Soc.*, 1936, 35 81
- Observations on ophthalmology of the near east. H W GEORGE. *Pennsylvania M J*, 1936, 39 334
- Ophthalmic errors. H BARKAN. *Am J Ophth*, 1936, 19 129
- Remote point for visual acuity tests F G MURPHY. *Am J Ophth*, 1936, 19 151
- Scientific and practical considerations involved in the near vision test with presentation of a practical and informative near vision chart. J E LEBENSOHN. *Am J Ophth*, 1936, 19 110
- Blindness in India S BAGCHI. *Calcutta M J*, 1936, 30 460
- Experiences of a sufferer from word blindness A. Bnt. *J Ophth*, 1936, 20 73
- Diagnosis and treatment of anisophoria J S FRIEDENWALD. *Arch Ophth*, 1936, 15 283
- Siderosis bulbi (foreign body removed) W H MC-MILLIN, A G PALIN, and J E H COGAN. *Proc Roy Soc Med*, Lond, 1936, 29 389

- Analysis of 500 intra-ocular steel injuries S WALKER, JR. *Surg, Gynec. & Obst.*, 1936, 62 483
- The relationship between ethmoiditis and ocular disturbances S L KOCH and J H MCCREADY. *Am J Roentgenol*, 1936, 35 215
- Lipodystrophia progressiva, ocular complications J W CHARLES and M H. POST. *Am J Ophth.*, 1936, 19 126
- Surgical correction of defects due to paralysis of the muscles of the eyes and lids M WIENER. *Surg, Gynec. & Obst.*, 1936, 62 487
- Milk in the treatment of gonoblenorrhoea T H. LUO Chinese M J, 1936, 50 27
- The practical use of bacteriology by the ophthalmologist. S R. GIFFORD. *Ohio State M J*, 1936, 32 118 [516]
- Iridocorneosclerectomy for glaucoma C BERENS. *Surg, Gynec. & Obst.*, 1936, 62 496
- On the surgery of glaucoma, mode of action of cyclo-dialysis O BARKAN, S F BOYLE, and S MAISLER. *Am J Ophth*, 1936, 19 21 [516]
- Minor surgery about the eye H. S GRADLE. *Surg Clin North Am*, 1936, 16 345
- Excision of the eye with implantation of a fat graft in Tenon's capsule G G PENMAN. *Proc. Roy Soc. Med.*, Lond, 1936, 29 391
- A combination loupe and head mirror C BERENS. *Am J Ophth*, 1936, 19 152
- Defunct London eye hospitals A SORSBY. *Brit J Ophth*, 1936, 20 77
- The treatment and complications of chalazia A H BRIGGS. *Brit. J Ophth*, 1936, 20 68
- Studies on the infectivity of trachoma R. W HARRISON and L A. JULIANELLE. *Am J Ophth.*, 1936, 19 118
- Orbital abscess with complete recovery D C ORCUTT. *Surg, Gynec. & Obst.*, 1936, 62 503
- Clinical observations upon the importance of the vestibular reflexes in ocular movements The effects of section of one or both vestibular nerves F R. FORD and F B WALSH. *Bull. Johns Hopkins Hosp*, Balt., 1936 58 80
- The relation of accommodation to the suppression of vision in one eye. G A FRY. *Am J Ophth.*, 1936, 19 135
- Concomitant strabismus T AB TRAVERS. *Brit J Ophth*, 1936, 20 Supp [516]
- The non-surgical treatment of non-paralytic strabismus S V ABRAHAM. *Am J Ophth*, 1936, 19 139
- Surgical treatment of strabismus in relation to orthoptic training A DEH PRANGEN. *Surg, Gynec. & Obst.*, 1936, 62 520
- Tendon grafting in paralytic squint. E T SMITH. *Australian & New Zealand J Surg*, 1936, 5 219 [518]
- Myectomy ("tenotomy") of the left inferior oblique J P MARTIN. *Proc. Roy Soc Med*, Lond, 1936, 29 384
- Myectomy of the left inferior oblique for ocular torticollis J P MARTIN. *Proc. Roy Soc. Med*, Lond, 1936, 29 384
- Radiography of the lachrymal system R C LENOX. *Rev méd de Chile*, 1935, 63 678

Persistent lachrymation: excision of the palpebral portion of the left lachrymal gland, extremely satisfactory result. J P MARTIN *Proc Roy Soc Med Lond* 1935, 30, 336

Sympathetic ophthalmia. A C. WOOD. *Am J Ophth* 1935, 19, 9, 100.

Concerning the white ring in the cornea. Y. UYAMA. *Arch Ophth* 1935, 13, 300.

Corneal dystrophy (?) with relapsing attacks of keratitis. T K LYLE. *Proc Roy Soc Med Lond* 1935, 30, 388.

Harpes cornea, with special reference to its treatment with a strong solution of iodine. T GUNDERSEN. *Arch Ophth* 1935, 5, 5.

Tuberculous scleritis with sclerosing keratitis. J. ELLISON. *Proc Roy Soc Med Lond* 1935, 30, 391.

Hypoxe membranes upon the posterior surface of the cornea, with special reference to the congenital types. C A CLARE. *South M J* 1935, 30, 119.

The surgery of corneal grafts. B W RYAN. *Lancet*, 1935, 30, 320.

Biomechanics of the lens. VI. Mineral metabolism in the normal and in the cataractous lens. J E LUKOMOV. *Arch Ophth* 1935, 13, 317.

Cataract formation occurring following the use of di-tropenol. H E HILL. *J Indiana State M Ass* 1935, 30, 67.

Hereditary cataract of the senile and presenile types. F VERNER. *Arch Ophth* 1935, 5, 322.

The management of complications in the operation for senile cataract. H W WOODS. *Am J Ophth* 1935, 19, 146.

Epithelial desquamation into the anterior chamber following cataract extraction, arrest by radium treatment. D VAN. *Arch Ophth* 1935, 13, 310.

The management of complications in the operation for cataract and glaucoma. J O McKEOWN. *Surg Gynec & Obst* 1935, 61, 317.

Performing wound twenty years after traumatic cataract. A G PALIN. *Proc Roy Soc Med Lond* 1935, 30, 380.

A new forceps for removal of lead shot from the vitreous. H E THORNE. *Arch Ophth* 1935, 13, 308.

Syphilis of the sclera. M E ALVARO. *Rev oto-otico-oftalmol y de chirug neural Sud-Am* 1935, 10, 136.

Congenital retinal fold. A E ILES. *Proc Roy Soc Med Lond* 1935, 30, 390.

Cystic retinal detachments. H RIDLEY. *Brit J Ophth*, 1935, 30, 61.

Reattachment of the right detached retina after an extensive operation to seal up serious holes. J P MARTIN. *Proc Roy Soc Med Lond* 1935, 30, 383.

The function of the eye: muscular and perimacular adhesion, the priority of sclerography. J LUD PAVLA. *Rev oto-otico-oftalmol y de chirug neural Sud-Am* 1935, 10, 303.

Vascular diseases of the retina. T K LYLE. *Proc Roy Soc Med Lond* 1935, 30, 391.

Macular macula. H MEYER. *Proc Roy Soc Med Lond* 1935, 30, 386.

Indirect traumatic lesions of the optic nerve and optic canal. F DE LEO. *Rev de chir* 1935, 603. [19]

Subacute combined degeneration of the cord in puerperal women, with retrobulbar neuritis. J P MARTIN. *Proc Roy Soc Med Lond* 1935, 30, 386.

Non malignant tumor of the right optic nerve. J P MARTIN. *Proc Roy Soc Med Lond* 1935, 30, 386.

EAR

The educational aspect of deafness. H EARLAN. *Med J Australia*, 1935, 30.

A theory of hearing as the result of microphone action of the ear. F LUD. *Acta Soc med Fennica Helsing*, 1935, 41, Fasc 3.

Auditory function studies in an unselected group of pupils at the Clarke School for the Deaf. II. Classification according to type and level of graph by air conduction. R P GONZALEZ and L A. HERRERA. *Laryngoscope*, 1935, 45, 130.

Typhoid in the treatment of otosclerosis. Preliminary report. M A. GONZALEZ. *Laryngoscope*, 1935, 45, 111.

The ear in vertigo. E DRACOS. *Presmed Par* 1935, 44, 98.

Can certain diseases of the ear, nose, and throat, especially degeneration of the eighth nerve, be classified as "degenerative diseases"? G. SCHULTZ. *Laryngoscope*, 1935, 45, 85.

The importance of sibilant symptoms in the diagnosis of intracranial symptoms of otitis. R A. BENJARA and C. BENJARA. *Presmed Par* 1935, 44, 102.

The endocrinal complications of suppurative otitis media. J M ALVARO. *Rev oto-otico-oftalmol y de chirug neural Sud-Am* 1935, 10, 103.

A sensory syndrome due to syphilis of the lateral ear. M. PASTOR. *Presmed Par*, 1935, 44, 171.

New therapeutic agents and their practical value in otolaryngology. J A. THORNTON. *J Louisiana State M. Soc* 1935, 36, 93.

Bacteriophage therapy in nasal and ear diseases. S L. ROBERT. *Laryngoscope*, 1935, 45, 107.

Acute suppurative ear disease: otitis, mastoiditis, and labyrinthitis. H. BIANCHI. *Presmed Par* 1935, 44, 136.

Puncture of the internal jugular vein in cases of mastoiditis. L. M. FRIEDMAN. *Arch Otolaryngol* 1935, 3, 39. [19]

Primary skin graft in modified (Bosty) radical mastoidectomy for prevention of hearing in cases of gross cholesteatoma. G E. SARGENT, JR. *Arch Otolaryngol* 1935, 31, 323.

A brief consideration of the history of the development of mastoidectomy. R. SORRENTINO. *Surg Gynec & Obst* 1935, 61, 513.

Diffuse osteomyelitis involving the bones of the skull following suppurative otitis or otitis. P. DEBOUT, G. PATRICE, and H. BÉGIN. *J de chir Par* 1935, 47, 131. [19]

NOSE AND SINUSES

The plastic repair of saddle nose. A. F. KATZ. *Serv Chir* 1935, 7, 44.

Improved intranasal packing, a rubber paranasal pack. P W. STEVENSON. *Arch Otolaryngol*, 1935, 3, 37.

Rhinodermatosis, with the report of a case. F E. LUCAS. *Canadian M Ass J* 1935, 34, 149.

Allergic rhinitis associated with rhinitis and allergic sinusitis. R. PONSARD. *Rev Assoc med Argent* 1935, 49, 540.

Chronic sinusitis and its complications. R. PONSARD and J M. TAZO. *Rev Assoc med Argent*, 1935, 49, 173.

Surgical approach to the nasal accessory sinuses. W. VITTORELLI. *Surg Gynec & Obst*, 1935, 61, 534.

An improved nostril needle. G D. WOLF. *Arch Otolaryngol* 1935, 31, 320.

Discussion on the treatment of acute frontal sinusitis. *Proc Roy Soc Med Lond* 1935, 30, 392.

Nephrosis of the nostrils. E L. BENJARA and M D. BENJARA. *Laryngoscope*, 1935, 45, 137.

A record of 100 transnasal-rhinoplasty operations. C E. FURCH. *Surg Gynec & Obst*, 1935, 61, 300.

Unique symptoms and effects of sphenoidal diverticula. C H. BOWEN. *Surg Gynec & Obst* 1935, 61, 514.

The radiological investigation of the superior maxillary antrum. E H. SHANNON J Am M Ass, 1936, 106 599

Mouth

The treatment of wounds of the mouth U RHEINWALD Deutsche zahnärztliche Wchnschr, 1935, p 1123

Fibroma of the mouth W GIENKE 1935 Freiburg 1 Br., Dissertation.

The selection of treatment for cancer of the mouth and pharynx. F A FIGI Radiol. Rev & Mississippi Val M J, 1936, 58 13

Stretching of the lip HEITMUELLER. Deutsche zahnärztliche Wchnschr, 1935, p 1174.

The repair of postoperative defects involving the lips and cheeks secondary to the removal of malignant tumors G B NEW and F A FIGI Surg, Gynec. & Obst., 1936, 62 182

Cleft palate operations V RIEMKE Hosp.-Tid., 1935, pp 741, 753

Nasopalatine duct cysts M GOODMAN Radiology, 1936, 26 151

Pharynx

The tonsils in infants J FEUZ Rev méd de la Suisse Rom., 1936, p 18

Malignant lymphoma of the tonsil H JACKSON, JR., F PARKER, JR., and A M BRUES Am J M Sc, 1936, 191 1 (520)

Premedication and inhalation anesthesia for tonsil and adenoid operations in young children J T GWATHMEY Am J Surg, 1936, 31 272

The tonsillar stump L SILVA Med rev mex, 1935, 16 553

Pneumococcus meningitis following tonsillectomy and terminating in recovery S E HARRIS and H. A YENIKOMSHIAN Lancet, 1936, 230 143

Manifestations of leukemia encountered in otolaryngological and stomatological practice A A LOVE Arch Otolaryngol., 1935, 23 173

The management of fibroma of the retropharynx, report of a case. H L ALBRIGHT New England J Med, 1936, 214 242

Malignancy of the upper respiratory tract and adjacent structures, selection of treatment. F A FIGI Surg, Gynec. & Obst., 1936, 62 498

Malignant tumors of the epipharynx S SALINGER and S J PEARLMAN Arch Otolaryngol., 1935, 23 149

Neck

Bilateral cervical rib, arteritis on the right side PICOT Mém. l'Acad. de chir, 1936, 61 1430

A case of neck wound V L KHENKIN Sovet khir, 1935, 8 156

A case of cervical adenitis D N BASU Calcutta M J, 1936, 30 475

Actinomycosis of the face and neck complicated by brain abscess. F SANDOR. Orvosképzés, 1935, 25 107

Deep abscess of the neck. J F BARNHILL Minnesota Med, 1936, 19 83

Suprascapular branchiogenic ventriculoid cyst. H HAMDI and K. S UGE. Arch f path Anat. 1935, 295 576

Tumor of the carotid body H DIONISI Semana méd, 1936, 43 292

Non-myxedematous hypothyroidism H L SCHUTZ J Michigan State M Soc, 1936, 35 97

New studies of hyperthyroidism J BAUER. Presse méd, Par, 1936, 44 209

Experimental studies of ligneous thyroiditis L OLPER. Arch ital. di chir, 1935, 41 637 (520)

The goiter epidemic in Tyrol J BURTSCHER and W SPRENGER. Wien klin. Wchnschr, 1935, 2 1231

A statistical study of goiter and its geographic distribution in the southern Black Forest and in the neighboring plains of the Rhine H DANNER 1935 Freiburg, Dissertation

Goiter and its surgical treatment. M KOLIBAS Verhandl d I Kong jugoslav chir Ges, 1934, 4 024.

The histological reactions of the skeletal musculature in experimental thyrotoxicoses G C PARENTI and P POLONI Sperimentale, 1935, 89 485 (521)

Basedow's disease F STARLINGER Wien. med Wchnschr, 1935, 2 1304.

Basedow's disease and gastric secretion SCHWANKE Zentralbl f Chir, 1935, p 2804.

New theory for the development of exophthalmic Basedow's disease M ZAPPACOSTA Riforma med, 1936, 52 6

Thyroxin M G BARGER Bruxelles-méd, 1936, 16 284.

The iodine relationships of thyroid disease G M CURTIS Surg, Gynec. & Obst., 1936, 62 365

Pre-operative iodine therapy in hyperthyroidism. E E BLANCK. Surg, Gynec. & Obst., 1936, 62 213

The present status of iodine in the treatment of exophthalmic goiter J L DECOURCY Arch. Surg., 1936, 32 346

The effect of freezing of the thyroid area V PATRONO Riforma med, 1935, 51 1760

Surgical pathology of the thyroid gland A. C BRODERS Texas State J M, 1936, 31 608

Complications in operations on the thyroid gland M R. WEBER. Sovet khir, 1935, 7 102

Thyroidectomy and the course of infections. A morphological study of the cellular reactions in thyroidectomized animals R GALLI. Arch. ital di chir, 1935, 41 571

Total thyroidectomy for cardiac insufficiency in patients with a normal gland, a contra-indication to operation WELTI, FACQUET, BARRAIA, and LEVEN Mém. l'Acad. de chir, 1936, 62 26

A study of thyroidectomized patients V H BERGMAN J Missouri State M Ass, 1936, 33 57

The etiology and diagnosis in hyperparathyroidism R M WILDER and L P HOWELL. J Am. M Ass, 1936, 106 427

Roentgenography of the larynx and pharynx R P O'BANNON South. M J, 1936, 29 154.

Motion picture study of laryngeal lesions F E LE JEUNE Surg, Gynec. & Obst., 1936, 62 492

Spontaneous fistulas of the larynx A case report. O C JONES Virginia M Month., 1936, 62 654

Laryngeal tuberculosis L C ROUGLIN J Med Ass Georgia, 1936, 25 44

Cancer of the larynx. W E SAUER. Surg, Gynec. & Obst., 1936, 62 508

The treatment of carcinoma of the larynx. G B NEW and F A FIGI Surg, Gynec. & Obst., 1936, 62 420

Carcinoma of the larynx, a plea for more conservative surgical procedures in certain cases N PATTERSON Arch Otolaryngol, 1936, 23 295 (521)

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

- Practical ventriculography R. GAMBRO Med rev mex 1936, 10 25
- Encephalography the value of the second-day examination E. P. FERNANDEZ and P. J. HERRERA Radiology 1936, 30 146
- A new method of craniocerebral topography A. BERTOLA Ann d'ist patol., 1935, 12 100
- Experimental encephalography with anesthetic gases R. B. ARON Arch Surg 1936, 31 191 [122]
- Vasulation of the cerebral vessels by direct microcatheter injection of thorium chloride (thorotum) J. LOMAY and A. M. VERNON Am J Roentgenol 1936, 31 165
- The anatomical and physiological relations between the hypothalamus and the hypophysis G. ROSEN and M. MONTAGNE Brunsen-med., 1936, 16 581
- Prostrating wounds of the brain C. PILCHER Ann Surg 1936, 103 173
- A pathologic-anatomical and clinical study of gunshot wounds of the brain A. ELLER 935 Leipzig, Thome
- Cerebral injuries due to external trauma. G. W. SWIFT Surg Gynec & Obst 1936, 62 340
- The Donaghy reaction in the cerebrospinal fluid and in the urine following craniocerebral lesions G. BUTTAYARI Riforma med 1935, 5 944
- A new severe symptom of cranial trauma LACARRE Presse med Par 1936, 44 320
- A historical review of the changes in the conception of traumatic lesions of the brain, with particular reference to commotio cerebri O. RICHNER 935 Oslo, Dybbal
- A discussion of Mace's syndrome in head injuries and syndromes J. A. SHELTON South M J 1936, 30 93
- The treatment of traumatic injuries to the brain F. DE QUERVAIN Ztschr f Unfallmed 1935, 39 67
- The treatment of fractures of the base of the skull I. SCHREIBER Monchschr med Wchschr 1935, 171
- The treatment of fractures of the base of the skull HENRI MACCHESNI med Wchschr 1935, 383
- Combining decompression for fractures and fractures of the skull A. A. GONZALEZ Sanchez med 1936, 43 287
- Emergency surgery in fractures of the vault of the skull J. MAHON Rev med de chir guay y color 1935, 3 805
- The value of thorough first examinations of the general practitioner in later studies of patients following skull and brain injuries A. ELLER Med Klin 1935, 1001
- Reconstructions of the dura mater and experimental evolution of craniomeningoencephalic wounds. M. DE BERNARDINI Arch ital di chir 1935, 41 183 [122]
- The Hryles operation for hydrocephalus V. E. SALVENDY Sovet khir 1935, 7 60
- The results of the Hryles operation in hydrocephalus M. N. BIRLOV Sovet khir 1935, 7 96
- Congenital ventricular hydrocephalus and its surgical treatment U. NORDLI Arch ital di chir 1935, 41 191
- Aerocelia cerebri E. BOOS Zentralbl f Chir 1935, 6 289
- A review clinical and pathological, of parathyroidectomy lesions. C. H. FRAZER Surg Gynec & Obst 1936, 6 58
- The papillary reactions in combined lesions of the posterior commissure and of the papillothalamic tracts, the pathogenesis of the Argyll Robertson pupil. N. P. SCALA and E. A. SHERIDAN Arch Ophth 1936, 5 95
- Ventriculography in retrolental tumors F. A. A. ZILBERT Med rev mex 1936, 10 33

Tumors of the hypophysis a clinical and ophthalmological study M. R. CARTER and S. RABENNA Arch ophthol 1935, 7 641

Subdural hematoma in the temporal region from injury of the posterior ramus of the middle meningeal artery in fracture of the vault. T. ARITA Scienza med 1936, 43 144

Case reports in bone surgery J. HORNWALLING When klin Wchschr, 1935, 14

The operation of Ody R. P. TRINERO Rev de chir Hosp Juarez, Mex 1936, 7 87

Post traumatic severe meningitis with signs of localization, misdiagnosed as a hematoma; trephination, recovery PRUIT DUTAILLE and CHRISTOPHER Mém P Acad de chir 1936, 61 64

The syndrome of meningial fibroblastoma arising from the lesser wing of the sphenoidal bone R. A. GROW Arch Ophth 1936, 15 163

The rôle of anesthesia in the control of atrophy of the optic nerve due to syphilis a study of twelve cases. C. P. CLARK Arch Ophth 1936, 15 190

Optic atrophy amenable to surgery M. BILADO and J. MALINVA Arch argent de neur 1935, 3 90

A rare case of traumatic trigeminal neuralgia G. COLLOTT Riforma med 1936, 5 40

Sublateral trigeminal tic W. HARRIS Ann Surg 1936, 103 161 [122]

Trigeminal neuralgia due to tuberculous meningitis C. CHASTLIN Rev med de Chir, 1935, 63 647

Electroencephalography of the gasserian ganglion for trigeminal neuralgia E. HERTZ Arch f klin Chir 1935, 181 1

The treatment of facial palsy A. VIKTOROVSKY Surg Clin North Am 1936, 16 23

Early asymptomatic acoustic tumor a report of six cases M. HARTY and S. J. CHOW Arch Surg 1936, 103 301 [122]

Spinal Cord and Its Coverings

The intraspinal injection of absolute alcohol for lumbago abdo pain W. D. ARNOTT Am J Surg 1936, 51 35

Peripheral Nerves

Neuralgia parasthetica F. C. LEE Internat Clin 1936, 10

Paralysis of the axillary (circumflex) nerve with spontaneous recovery after seven months S. HILSON J Am M Ass 1936, 66 705

My method of neurotization of the partially paralyzed nerve F. POKRYKA Rev de chir Par 1935, 54 117

Nerve anastomosis as an emergency measure in war surgery JACOB ABADY y CASTILLO Rev de chir Hosp Juarez, Mex 1935, 6 700

Surgery of the superior hypogastric plexus of the sympathetic nervous system N. M. PERRY and H. P. BEATTY Surg Clin North Am 1936, 6 285

Sympathetic Nerves

The autonomic nervous system essential anatomy A. KURTZ J Am M Ass 1936, 105 143

Clinical tests of the function of the autonomic nervous system G. E. BROWN J Am M Ass 1936, 105 151 [122]

The rôle of the autonomic nervous system in the production of pain I. DAVIS and L. J. POLLOCK J Am M Ass 1936, 105 150

Essential pharmacology of the autonomic nervous system D E JACKSON J Am M Ass, 1936, 106 357

Indications for operations on the sympathetic nervous system A W ADSON J Am M Ass, 1936, 106 360 [523]

Posterior exposure of the stellate ganglion H GRENET Bordeaux chir, 1936, p 40

Oscillometric changes in the extremities following periaxillary sympathectomy GOINARD, BARDECAT, and PIÉTRI Lyon chir, 1936, 33 5

Miscellaneous

Two cases of neurinoma G D PATLIS Sovet khir, 1935, 8 152

Neurofibromatosis, with reference to skeletal changes, compression myelitis, and malignant degeneration A MILLER Arch Surg 1936, 32 109 [526]

Neurofibromatosis the effect of pregnancy on the skin manifestations J C SHARPE and R H YOUNG J Am M Ass, 1936, 106 682

SURGERY OF THE THORAX

Chest Wall and Breast

Pain in malformations of the last ribs GRIMON Arch de med, chirug y especial, 1936, 17 49 [527]

Calcification and ossification of the thoracic wall F BEUNE 1935 Muenster L W, Dissertation

Pulsating tumors of the sternum G CRILE JR Ann Surg, 1936, 103 199

Topographic studies of the chest with reference to mamoplasty L DARTIGUES Clin y lab, 1936, 21 27

The relation of chronic mastitis to certain hormones of the ovary and pituitary and to coincident gynecological lesions I Theoretical considerations and histological studies H C TAYLOR, JR. Surg, Gynec & Obst 1936, 62 129

Tuberculosis of the breast. L BERGER and H MANDL BERN Ann. Surg, 1936, 103 57 [527]

The treatment of acute intramammary abscess by incision and by aspiration R J V BATTLE and G N BAILEY Brit J Surg, 1936, 23 640 [528]

Paget's disease of the nipple. D COLILLAS and R L MASCIOTTA Rev méd quirúrg de patol femenina 1935, 4 835

The frequency of Paget's disease C CALDEFON Med Ibera, 1935, 19 601

Carcinoma of the breast R B MALCOLM Surg Clin North Am, 1936, 16 303

Radiation treatment of breast cancer G VILVANDRÉ Brit J Radiol, 1936, 9 132

Surgery of cancer of the breast C ZUCKERMAN Rev mex de cirug, ginec. y cáncer, 1936, 4 15

Trachea, Lungs, and Pleura

A new technique for intratracheal injection A VALERIO Folha med, 1935, 16 547

Bronchial dilatation in children J TENOPALA Rev mex de cirug, ginec y cáncer, 1936 4 45

Bronchial catheterization S A THOMPSON Am J Surg, 1936, 31 260

The present status of bronchoscopy in bronchial asthma L H CLERF Ann Int Med 1936, 6 100

Röntgenographic changes following the introduction of mineral oil in the lung, with a report of three cases K S DAVIS Radiology, 1936, 26 131

A study of the various structural and functional factors in the human lung which favor localization of tuberculosis in the upper lobes in the adult L MENOZZI Arch med chir de l'appar respir, 1935, 10 255

Maggot and allantoin therapy in tuberculous and non tuberculous suppurative lesions of the lung and pleura A BETHUNE J Thoracic Surg 1936 5 3 2

Contribution on bilateral collapse therapy of the lungs L BARNI and G LEONINI Policlin Rome 1936 43 sez. med 42

Surgical treatment of pulmonary tuberculosis H BRADSHAW J Kansas M Soc 1936, 37 52

The roentgen appearances of cavities held by adhesions, and their importance in the management of artificial pneumothorax P PRIVOST M RIMER, and G TOGUTAS Arch med chir de l'appar respir, 1935, 10 398

The future of artificial pneumothorax discontinued early MINET and CORVILLE Arch méd-chir de l'appar respir 1935, 10 382 [528]

Röntgenological indications for pleurolysis O M MISTAL Rev méd de la Suisse Rom, 1936, p 104

Bronchography following thoracoplasty for tuberculosis H L CABOTT J J SINGER and E A GRAHAM J Thoracic Surg 1936, 5 259

Surgical revision of unsatisfactory thoracoplasty by reoperation and extrapariosteal (subscapular) packing T J KINSELLA J Thoracic Surg, 1936, 5 267

Resection of the medial part of the scapula for the relief of pain and disability after thoracoplasty C R STEINKE and J T VILLANI J Thoracic Surg, 1936, 5 286

Bronchiectasis its diagnosis and treatment A C CHRISTIE Radiology, 1936, 26 138

A roentgen study of the mode of development of encapsulated interlobar effusions L G RIGLER J Thoracic Surg 1936 5 205

Cystic disease of the lung H HENNELL Arch Int Med 1936 57 1 [529]

The diagnosis of bronchial carcinoma a clinical and roentgenological study of fifty cases J T FARRELL JR Radiology 1936 26 261 [529]

Primary carcinoma of the lung A ARLEN and D H WALTER J Am M Ass, 1936, 106 587 [529]

The surgical technique of total pneumonectomy W F RIENHOFF JR Arch Surg, 1936, 32 218

Hemorrhagic pleurisy and symptomatic pleurisy of the lung A ROMANO, S REY and R SAEFTZY Rev Asoc med argent 1935 40 1, 95

Purulent staphylococcal pleurisy following an abscessed tooth C P MONTANA and G J DI FORA Semana med, 1936 43 142

A case of encapsulated empyema W M KO Chinese M J 1936 50 50

The treatment of thoracic empyema by aspiration and air replacement B J MCCLOSKEY Pennsylvania M J, 1936 30 356

A new treatment for empyema and pulmonary fistula, intrapleural irradiation O M MISTAL Reforma med., 1935 51 1995

The treatment of residual cavities following empyema von SFLIMEN Zentralbl f Chir, 1935, p 2339

Heart and Pericardium

Heart wounds I J STEPHANOV Sovet khir, 1935, 6 274

Aortotomy in the treatment of wounds of the heart
C. M. WATSON and J. R. WATSON. *J. Am. M. Ass.* 1935, 105: 520

The heart as a surgical organ, with special reference to the development of a new blood supply by operation. C. F. BICK. *Ohio State M. J.* 1935, 31: 113

Pericarditis. I. BARR. *California M. J.* 1935, 30: 285
The operative treatment of calculeous pericarditis. LACK. *West. Zentralbl. f. Chir.* 1935, 7: 2615

Some new work on the operative treatment of chronic pericarditis. C. LINDQUIST. *Presse med. Par.* 1935, 44: 11

Esophageal and Mediastinum

An extreme case of esophageal spasm. S. C. STURGEON. *Chinese M. J.* 1935, 30: 15

A new case of radium therapy in cancer of the esophagus. J. GUINER. *Bull. et ann. Soc. d'chirurgiens de Par.* 1935, 7: 575

Carcinoma of the esophagus—its treatment by surgery. G. G. TURET. *Lancet*, 1935, 230: 67, 130

Esophagectomy for carcinoma of the thoracic esophagus. K. S. J. KURO. *Bull. J. Surg.* 1935, 21: 581. [330]

Dermoid cysts of the mediastinum. RUTER. *Zentralbl. f. Chir.* 1935, 7: 2620

Miscellaneous

Subcutaneous injury to the diaphragm and its medico-legal aspects. MINOZAKAWA. *Zentralbl. f. Chir.* 1935, 7: 2621

Diaphragmatic hernia. C. H. NICHOLSON and A. S. GUN. *Rev. med. Lat. Am.*, 1935, 30: 1905

Diaphragmatic hernia. Aberrant lobe of the liver. C. V. SCHLIER. *Rev. med.-quirurg. de patol. (cosmesis)*, 1935, 4: 815

Rare complications of endobronchial cancerization. H. LÖNN. *Cas lek. dok.* 1935, 7: 2624

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Three cases of peritonitis of the omphaloenteric duct congenital umbilical fistula. J. LEEVY, R. LINDOY, and A. PIERCE. *Ann. d'hist. nat.* 1935, 1: 1015. [332]

Peritonitis atresia in the adult. C. L. WILSON. *J. Am. M. Ass.* 1935, 105: 516

An anomalous band connecting the liver, peritoneum, and transverse colon, associated with appendix of the great omentum. S. DOMANI. *Arch. ital. di chir.* 1935, 43: 831

The symptomatology of epigastric hernia. J. de J. PIERCE and F. S. CLAY. *Minnesota Med.* 1935, 9: 109

A strangulated inguinal hernia in an infant three weeks old. T. H. SMALL. *Med. J. Australia*, 1935, 304

The injection method in the treatment of hernia. R. ROSEN. *Med. Rec. New York*, 1935, 123: 15

The results of surgical treatment in 1,000 strangulated hernias. A. A. BOCHAROV and L. S. ORDOVYAN. *Sov. khir.*, 1935, 6: 19

The differential diagnosis of tumors occurring in the abdominal wall. J. HALBAUM. *Wien. med. Wochenschr.* 1935, 5: 790

Hemiatresia in the rectus abdominis in women. A. LINDNER. *Acta obst. et gynec. Scand.* 1935, 23: 475

Gastric lipoma of the abdominal wall. M. ESCALONA. *Prog. de la chir. Madrid*, 1935, 44: 84

Primary pneumococcal peritonitis, a pathological, anatomical, and animal experimental study. H. LINDNER. 1935. Erlangen, Dissertation.

The atrophyphylaxis of anaerobic peritonitis. A. M. HELLER. *Sov. khir.* 1935, 7: 50

Anomalous blood coagulation as an activator of peritoneal immunity. H. L. JOHNSON, G. K. COOPER, J. B. HARRIS, P. S. FORD, and O. ACHARYA. *Surg. Gynec. & Obst.* 1935, 61: 171

Epiploic breth in peritonitis. H. FRANKS and C. G. RADZ. *Northwest. Med.* 1935, 35: 62

The lymph vessels of the human omentum, with particular reference to the treatment of diaphragmatosis. W. DIECK. *Ber. u. Klin. Chir.* 1935, 163: 306

Experimental investigations on the function of the great omentum. H. UEDA and W. MARSDEN. *Deutsche Ztschr. f. Chir.* 1935, 441: 300. [532]

Gastro-Intestinal Tract

Five thousand gastro-intestinal X-ray examinations. A review and a summary of the conclusions. E. C. KOTON. *New York State J. M.* 1935, 30: 84

Observations on the diaphragm and the gastro-intestinal tract. J. D. O'BRIEN. *Ohio State M. J.* 1935, 31: 134

The treatment of gunshot wounds of the gastro-intestinal tract. M. C. G. GARCIA GARCIA. *Rev. de chir. Hosp. Juntas, Mex.* 1935, 6: 733

Decompression of the gastro-intestinal tract. I. The use of certain simple mechanical appliances for the control of abdominal distention. H. H. LOOCH and H. C. FAIR. *Chinese M. J.* 1935, 30: 97

Small hernia following the Kruske operation and its significance with regard to secondary procedures. E. ERVER. *Deutsche Ztschr. f. Chir.*, 1935, 443: 707

The value of X-rays in the diagnosis of gastro-intestinal perforations. A. I. IVANOVA. *Sov. khir.*, 1935, 8: 85

The peptic index of achilic gastric secretions. C. B. UNANUE, H. ZILBER, and J. J. LACOUR. *Arch. argent. de enferm. d. apar. digest.*, 1935, 11: 16

Radiological examination of the stomach and duodenum. K. S. CHOW. *Bull. M. J.* 1935, 1: 351

Concerning stomachs that are upside down. D. A. RICHARDS. *South M. J.* 1935, 39: 39

Preoperative radiological evidence of diaphragmatosis, elevation of the left half of the diaphragm. H. C. TAYLOR. *Semin. med.* 1935, 42: 871

The effect of epiphrase on the emptying time of the human stomach. K. J. VAN LINDER, D. H. LOOCH, and C. K. SUTTER. *J. Am. M. Ass.* 1935, 105: 515

Cardiomyopathy, a new operation for the treatment of cardiomyopathy. G. LONZOWSKI. *Zentralbl. f. Chir.*, 1935, 7: 2628

Babcock's diverticula of the stomach. A. CAIR and G. GUTTMAN. *Presse med. Par.* 1935, 44: 13. [334]

Specific features of the pylorus and duodenum in children. T. F. KROZDZINSKY. *Sov. khir.* 1935, 8: 94

Pyloric stenosis and gastric dilatation. R. A. GUTTMAN and R. JACOB. *Presse med. Par.* 1935, 44: 155

The surgery of stomach hernia. B. A. PIERCE. *Sov. khir.* 1935, 6: 65

The prognosis and treatment of gastric haemangiomas due to ulcer. DUNN. *Deutsche med. Wochenschr.* 1935, 7: 305. [530]

- The frequency and significance of diagnostic errors in ulcer and carcinoma of the stomach and duodenum H VON HABERER. *Deutsche Ztschr f Chir*, 1935, 245 744.
- The diagnosis and treatment of peptic ulcer perforated into the peritoneal cavity G POTOTSCHNIG. *Arch. ital di chir*, 1935, 40 649 [535].
- The pathogenesis of gastric ulcer P FIORI. *Arch ital di chir*, 1935, 41 493.
- Chronic gastritis and gastroduodenal ulcer N LEOTTA. *Riforma med.*, 1935, 51 1823.
- Peptic ulcer following silk suture in gastro-enterostomy T E INILORYOV. *Sovet. khir*, 1935, 8 157.
- Peptic ulcers. P MCBEE. *South. M & S* 1936 98 71.
- Benign pre pyloric ulcer A C SINGLETON. *Radiology* 1936, 26 198.
- A case of familial gastroduodenal ulcer G PENNETTI. *Riforma med.*, 1935, 51 1939.
- Gastrojejunal ulcer W H GIBBON. *J Iowa State M Soc.*, 1936, 26 84.
- The etiology of acute perforation of gastric and duodenal ulcer D A ARAPOV and V F GROSSE. *Sovet. khir*, 1935, 6 57.
- Perforated gastric ulcer T St M NORRIS. *Lancet*, 1936, 250 362.
- Perforated gastric ulcer in elderly patients D H SANDELL. *Brit. M J*, 1936, 1 210.
- One thousand cases of perforated peptic ulcer S S JUDIN. *Sovet. khir*, 1935, 6 25.
- Some industrial aspects of acute perforation and hemorrhage of peptic ulcer A J BEAMS. *Ohio State M J*, 1936, 31 130.
- Procedures and results in gastroduodenal ulcer B NEWBURGER. *J Med*, Cincinnati, 1936, 16 631.
- The influence of pepsin and hydrochloric acid on the healing of gastric defects, artificial gastric ulcer E L HOWES, C. A. FLOOD, and C. R. MULLINS. *Surg Gynec & Obst* 1936, 62 149.
- The treatment of gastric and duodenal ulcer J ARCE. *Semana med.*, 1936, 43 81.
- The treatment of peptic ulcer based on physiological principles. A OCHSNER, M GAGE, and K HOSOI. *Surg Gynec. & Obst.*, 1936, 62 257.
- Personal results in the treatment of 3 200 cases of gastric and duodenal ulcer A FOYER. *Rev belge d sc med* 1935, 7 781.
- The medical treatment of gastroduodenal ulcer P V CERNADAS. *Rev méd. Lat.-Am.*, 1935, 21 58.
- Pepsin in the treatment of gastroduodenal ulcer A M SELCI. *Med. Ibera*, 1935, 19 761.
- The histidine treatment of peptic ulcer E W WILHELM and E. H. HASHINGER. *J Kansas M Soc.*, 1936 37 45.
- The histidine treatment of gastroduodenal ulcer DE SANTALARIA and MARRÓN. *Med. Ibera*, 1936 20 5.
- The treatment of gastroduodenal ulcer with histidine E. E MARTINEZ. *Clin. y lab*, 1936, 21 47.
- Gastropyloroduodenal ulcers and histidine A VALERIO. *Folia med.*, 1935, 16 568.
- Surgical or medical treatment of gastroduodenal ulcers M QUIRIONES. *Med. rev. mex.*, 1936, 16 35.
- Percentage of weight loss a basic indicator of surgical risk in chronic peptic ulcer H. O STUDLEY. *J Am M Ass.*, 1936, 106 458.
- Surgical indications for peptic ulcer and its surgical management. M E BLAND. *Surg, Gynec & Obst*, 1936, 62 203.
- The surgical management of peptic ulcer J A WOLFER. *Northwest Med*, 1936, 35 5 [536].
- Surgical treatment of gastric and duodenal ulcer F DAUWE. *Rev belge d sc méd*, 1935, 7 781.
- Surgical treatment of gastric and duodenal ulcers and their complications H FINSTERER. *Rev belge d sc. méd.* 1935, 7 745.
- Experiences in the surgical treatment of gastric and duodenal ulcers G E KONJETZKY. *Arch. f klin. Chir*, 1935, 182 685.
- Giant rugæ (localized hypertrophic gastritis) resembling carcinoma J L KANTOR. *Am J Roentgenol*, 1936, 35 204.
- Benign tumors of the stomach. Observations on their incidence and malignant degeneration L G RIGLER and L G ERICKSEN. *Radiology*, 1936 26 6 [537].
- The roentgen diagnosis of malignant tumors of the stomach H HAUSER and G T PACK. *Radiology*, 1936, 26 221.
- Sarcomatous degeneration of a myoma of the stomach. V MATYÁS. *Arch f klin Chir* 1935 182 408.
- The incidence of gastric cancer L I DUBLIN. *Am. J Surg* 1936 31 197.
- The beginnings of gastric cancer J EWING. *Am. J Surg* 1936 31 204.
- The early symptomatology and the diagnosis of gastric cancer S HARRIS. *Am J Surg*, 1936, 31 225.
- Gastric cancer correlation of roentgenological and pathological findings L G COLE. *Am J Surg*, 1936, 31 206.
- General considerations of gastro-intestinal carcinoma. I VILLAN. *Rev de gastro-enterol. de Mex.*, 1935, 1 85.
- The development and treatment of cancer of the stomach W WALTERS. *Minnesota Med*, 1936, 19 91.
- Carcinoma of the gastro-enterostomy stoma. A LUTJE. *Zentralbl f Chir* 1935 p 2304.
- The treatment of carcinoma of the stomach, a summary of results F B St JOHN, A O WHIPPLE and T S RARFORD. *Am J Surg* 1936, 31 246.
- Palliative irradiation of inoperable gastric cancer G T PACK and I M SCHARNAGEL. *Am J Surg* 1936, 31 247.
- Gastric resection for carcinoma of the stomach J S HORSLEY. *Am J Surg*, 1936, 31 240.
- Anesthesia for the surgery of gastric cancer J T GWATHMEY. *Am J Surg* 1936, 31 237.
- The effect of various gastric operations on Pawlow's pouch T ASAHITA. *Nagoya J Med. Sc.*, 1935, 9 245.
- An anastomotic button in a gastrojejunal union for a period of four years A PELLÉ. *Mém. l'Acad. de chir*, 1935, 61 1434.
- Retention of an anastomotic button four years after operation without clinical manifestations or complications A RICHARD. *Mém. l'Acad de chir*, 1936, 62 8.
- Roentgenological studies following gastric resection. J ŠKVARIL. *Chirurg*, 1935, 7 633.
- The function of the stomach after gastrectomy J SÉNÉQUE and C MARX. *J de chir*, 1936, 47 177.
- Perforation of the stomach as a postoperative complication following gastrectomy B DELL'ORO. *Bol. Soc. de cirug de Rosario*, 1935, 2 354.
- The surgical treatment of painful constipation C ZUCKERMAN. *Rev. mex. de cirug, ginec. y cáncer*, 1936, 3 737.
- Acute intestinal obstruction D L VAZA. *Sovet. khir*, 1935, 6 149.
- Changes of the blood chlorides following acute intestinal obstruction. V A. GOLOVITCHITZ. *Sovet. khir*, 1935, 6 163.
- Subcutaneous rupture of the herniated intestine following contusion. F LEINATI. *Clin chir*, 1935, 11 975 [538].
- Chronic cicatrizing enteritis R F BARBOUR and A B STOKES. *Lancet*, 1936, 230 299.
- Carcinoma of the limbus plastica type involving the intestine. C F DIXON and G A STEVENS. *Ann. Surg*, 1936, 103 263.

- Chemical changes in the blood in ileus. A. FLURY and O. KUDRAC. *Wien klin Wochenschr.* 1935, 145: 2.
- Duodenal ulcers of the small intestine. H. C. EDWARDS. *Ann Surg.* 1935, 101: 890.
- A combined form of ileitis and colitis. B. B. CROWN and B. D. ROYCE. *J Am M Ass.* 1935, 106: [133].
- Intestinal infarction. Segmental infarction of the small bowel cured by the resection of adhesion. Infarction of the small bowel cured by antitoxic medication. PAVOVICH. *Catr. e Lafarctur.* and Dufour. *Mém. l'Acad. de chir.* 1935, 6: 35.
- Malignant tumors of the small bowel. R. E. DONOVAN and A. C. ABERNETHY. *Arch argent de enferm. d. apar. digest.* 1935, 1: 2.
- Primary malignant tumors of the small intestine. H. P. DOUGLAS and H. C. JOYCE. *Radiology.* 1935, 25: 800.
- Four cases of duodenal diverticulum. J. BARABAZ. *Mém. l'Acad. de chir.* 1935, 6: 3.
- Duodenal fistulas their treatment. N. B. TURCO and H. MARINO. *Arch. argent de enferm. d. apar. digest.* 1935, 1: 3.
- The association of erythema and duodenal ulcer. M. KRAEMER and M. ASHBY. *Am J M Sc.* 1935, 10: 34.
- Perforated duodenal ulcer in an adolescent. I. K. ELLMAN. *Brit M J.* 1935, 1: 1.
- The treatment of chronic duodenal ulcer with histidine. K. J. B. DAVIS. *Med J Australia.* 1935, 2: 17.
- Duodenal ulcer surgical treatment. F. O. COCKRILL. *Surg. Gynec. & Obst.* 1935, 6: 16.
- Recent advances in the surgical treatment of chronic duodenal ulcers. R. LEWIS. *J Am M Ass.* 1935, 106: 684.
- Papilloma of the duodenum. E. SCHMIDT. *Am J Roentgenol.* 1935, 25: 808.
- Resection of recurrent duodenal carcinoma. von HANSEN. *Zentralbl. f. Chir.* 1935, p. 4934.
- The diagnosis of jejunal ulcer. C. COGNET. *Rev. de gastro-entérol. de Mex.* 1935, 19: 1.
- Jejunal ulcer following gastro-entrostomy. P. DACHES. *Mém. l'Acad. de chir.* 1935, 6: 58.
- The treatment of peptic ulcer of the jejunum. B. KATZMAN. *Wien klin Wochenschr.* 1935, 145: 6.
- The operative method of treating jejunal ulcer following anterior gastro-entrostomy. A. FLURY. *Wien klin Wochenschr.* 1935, 145: 45.
- Acute regional ileitis. J. G. PROSSER and G. E. GROSS. *Field Ann Surg.* 1935, 3: 73.
- Unusual inflammatory lesions of the ileocecal region. J. H. POWERS. *Ann Surg.* 1935, 101: 870.
- Meckel's diverticulum. R. B. GRANT, F. R. PUGH, and R. H. CHASE. *Am J Surg.* 1935, 51: 865.
- A clinical study of Meckel's diverticulum. D. B. ARONSON. *Soviet Med.* 1935, 8: 60.
- The pathology of Meckel's diverticulum. J. P. MAYER. *Soviet Med.* 1935, 8: 80.
- Unusual cases of a Meckel's diverticulum from the base of the appendix. M. N. HANLEY and H. D. COOPER. *J Am M Ass.* 1935, 106: 517.
- A case of invaginated Meckel's diverticulum. P. J. KONTSEV. *Soviet Med.* 1935, 8: 76.
- A radiological study of the colon. G. BAX. *Med. rev. med.* 1935, 10: 573.
- The superior value of roentgen images and radiological study of the colon. J. MASLOW. *Prose méd. Par.* 1935, 44: 67.
- A clinical contribution to the differential diagnosis of foreign bodies in the colon. M. D. MARTINEZ. *Wien med. Wochenschr.* 1935, 145: 6.
- Symptomatic for Hirschsprung's disease. H. V. PARVALL. *Zentralbl. f. Chir.* 1935, p. 318.
- Differential diagnostic difficulties between diverticulosis of the colon and neoplasms. R. HENCKEL. *Med. Welt.* 1935, p. 1057.
- The treatment of diverticulosis of the colon. C. J. MANSWELL. *Proc. Roy. Soc. Med. Lond.* 1935, 28: 170.
- Chronic ulcerated colitis. C. E. MARTIN. *Lancet.* 1935, 1: 660.
- The treatment of colitis. S. W. PATTERSON. *Practitioner.* 1935, 136: 136.
- The treatment of ulcerative colitis. A. F. HURST. *Brit M J.* 1935, 1: 330.
- The surgical treatment of chronic ulcerative colitis, its special reference to appendicectomy or colectomy (abstract). C. A. KILPATRICK. *Arch Surg.* 1935, 101: 303.
- Two cases of fecal fistula following strangulated inguinal hernia. E. M. MARFÉRE. *Bol. Soc. de chir. de Rosario.* 1935, 133.
- Acute granuloma simulating carcinoma of the colon and rectum. F. C. YANDELL. *Am J Surg.* 1935, 51: 345.
- Carcinoma of the colon. See C. GORDON TAYLOR. *Practitioner.* 1935, 136: 1.
- Carcinoma of the colon case report. I. K. BOLAND. *J. Med. Ass. Georgia.* 1935, 3: 30.
- Anthrax and cancer of the colon. A. C. REED and H. H. ARMSTRONG. *Am J M Sc.* 1935, 9: 37.
- The treatment of cancer of the colon. T. E. JONES. *Surg. Gynec. & Obst.* 1935, 61: 415.
- Resection of cancer of the colon. G. MESTRE. *Mém. l'Acad. de chir.* 1935, 61: 5.
- The complex and the complicated in the surgery of the large intestine. G. GORDON TAYLOR. *Proc. Roy. Soc. Med. Lond.* 1935, 29: 543.
- Concerning colonotomy. F. W. RABALA. *South M J.* 1935, 10: 130.
- Colonotomy and its management. W. B. GARNETT. *Practitioner.* 1935, 136: 59.
- Sliding hernias of the cecum and terminal ileocecal. J. S. VIKHOREV. *Soviet Med.* 1935, 8: 30.
- Actinomycosis of the cecum. W. F. BORISOV. *Ned. Tijdschr. v. Geneesk.* 1935, p. 4603.
- Inflammatory tumors of the cecum resembling acute appendicitis. F. CHIRYKOV. *Surg. Clin. North Am.* 1935, 6: 215.
- Experimental research on longitudinal and transverse plication of the cecum and ascending colon. D. BROLATO. *Arch. ital. di chir.* 1935, 4: 357. [133].
- Resection of the cecum and ascending colon. Some simple stage operative procedures. C. I. GATTI. *M. V. GATTI. Zentralbl. f. Chir.* 1935, p. 8005.
- Voluntarily foreign body in the appendix. VALDIZ, ROEPER, and BELLER. *Mém. l'Acad. de chir.* 1935, 61: 14.
- The syndrome of associated disease of the appendix and gall bladder. J. F. EMERSON. *Rev. de gastro-entérol. de Mex.* 1935, 19: 7.
- Appendicitis. L. L. HOBBS. *Ann Surg.* 1935, 101: 84. [135].
- Appendicitis. G. BASSO. *Policlin. Roma.* 1935, 4: 103, 1043.
- Observations on the pathology of appendicitis. A. J. TRICA. *Australian & New Zealand J. Surg.* 1935, 5: 203.
- Symptoms of acute and subacute appendicitis. D. N. DOUGLASS. *Rev. de chir. Par.* 1935, 44: 814.
- Tuberculous appendicitis. A. PRANAS and A. TOLVO. *Sov. med.* 1935, 45: 5.
- Complications of appendicitis. J. W. STEWART. *J. Massow. Surg. M. Ass.* 1935, 11: 5.
- Acute appendicitis and associated lesions some observations on the mortality. R. N. SCHILLINGER. *Arch Surg.* 1935, 101: 65. [136].

- Mortality factors in acute appendicitis. E D LEONARD and S DEROW *New England J Med*, 1936, 214 52 [540]
- A statistical study of 2,921 cases of appendicitis M R REID, D H POER, and P MERRELL *J Am M Ass*, 1936, 106 665
- The present status of the problem of appendicitis A D BEVAN *Surg Clin North Am*, 1936, 16 63
- The surgical treatment of acute appendicitis D A ARAPOV *Sovet. khir*, 1935, 6 173
- Tumors of the appendix H BOESE *Zentralbl. f. Chir*, 1935, p 1689 [540]
- Natural amputation of the appendix. W R ANGUS *Med J Australia*, 1936, 1 270
- Chronic intermittent obstruction of the ascending colon by panetocolic bands or membranes G L McWHORTER. *Surg Clin North Am*, 1936, 16 101
- Four cases of cancer of the descending colon treated in one stage by resection, complementary enterostomy, and extenized terminoterminal suture. R BERNARD *Mém l'Acad de chir*, 1935, 61 1436
- An operation for redundant sigmoid in one stage P GONARD and H. MERZ *J de chir, Par*, 1936, 47 220
- The problem of the low sigmoidal growth. F W RANKIN and A. S GRAHAM. *Ann Surg*, 1936, 103 255
- Sigmoidorectal intussusception due to carcinoma of the sigmoid A. A. SALVIN *Am J Surg*, 1936, 31 367
- Rectal stricture L LICHTENSTEIN *Am J Surg*, 1936, 31 111 [541]
- Benign stricture of the rectum. G P PENNOYER. *Am J Surg*, 1936, 31 127 [541]
- Two cases of infiltrating stenosis of the rectum G BENDANDL *Polichin, Rome*, 1936, 43 sez prat 195
- Cancer of the rectum and sigmoid E P HAYDEN *New England J Med*, 1936, 214 401
- Radical operation in the treatment of cancer of the rectum V F SENANTE *Rev de cirug de Barcelona*, 1935, 5 391
- Prunus ani. W J O'DONOVAN *Practitioner*, 1936, 136 148
- Hemorrhoids C N MORGAN *Practitioner*, 1936, 136 172
- The injection treatment of hemorrhoids C L MARTIN *Surg Clin North Am*, 1936, 16 337
- Scientific management of anal fissure C E HALL *J Med Ass. Georgia*, 1936, 25 57
- Fistula-in-ano O V LLOYD-DAVIES *Practitioner*, 1936, 136 186
- A case of fistula-in-ano with pilonidal sinus W M WARMAN *West Virginia M J*, 1936, 32 80
- Liver, Gall Bladder, Pancreas, and Spleen**
- The use of lipiodol in surgery of the biliary passages J C. ROSS *Lancet*, 1936, 230 251
- Surgical treatment and postoperative care of biliary lithiasis D DEL VALLE and E S GARRE *Semana méd*, 1936, 43 169
- Hepatography A. RATTI *Radiol med*, 1936, 23 1
- A critical study and evaluation of functional tests of the liver G MONTANO *Rev de gastro-enterol de Mex*, 1935, 1 69
- Jaundice due to phenobarbital C A BIRCH *Lancet*, 1936, 230 478
- Spirochætal jaundice. G A KERP *Glasgow M J*, 1936, 125 59
- Pathological physiology of the liver I MATSUI and K. NOUYE *Acta scholae med univ imp, Kyoto*, 1935, 18 116
- Empyema with liver abscesses I HIRSCHFELD 1935 Basel, Dissertation
- Intrahepatic lithiasis as a cause of pseudorecurrence following operations on the biliary tract. P PI-FIGUERAS and V ARTIGAS *Rev de cirug de Barcelona*, 1935, 5 422
- Solitary non parasitic cyst of the liver H. T. WIKLE and H. CHARACHE *Am J Surg*, 1936, 31 345
- A radiological study of the diagnosis of primary tumors of the liver G. CALCHI NOVATI. *Radiol. med*, 1936, 23*21
- Angioma of the liver W T FOTHERINGHAM. *Bol Soc de cirug de Rosario*, 1935, 2 335
- The "double-oral" method for cholecystography L R WHITAKER. *Am J Roentgenol*, 1936, 35 200
- The perfected technique for radiography of the gall bladder H. SOMMER *Rassegna internaz di clin e terap*, 1935, 16 1263
- The duodenum and evacuation of the gall bladder M ROYER and E C VEEARDO *Rev Soc argent. de biol*, 1935, 11 539
- Perforation of the gall bladder, with massive intraperitoneal hemorrhage W BARTLETT, JR. and R W BARTLETT *J Am M Ass*, 1936, 106 615
- Indications for surgical treatment of acute cholecystitis F BASSOLS *Rev de gastro-enterol de Mex*, 1935, 1 111
- The results of surgical treatment of acute cholecystitis A A ROBINSON *Sovet. khir*, 1935, 6 124
- A case of calcification of the gall bladder F B GURD *Canadian M Ass J*, 1936, 34 187
- A chloride secreting papilloma in the gall bladder A B KERR and A C LENDRUM *Brit. J Surg*, 1936, 23 615 [541]
- A return to cholecystostomy R. CANALS MAYNER. *Rev de cirug de Barcelona*, 1936, 6 1
- Some factors in the mortality of cholecystectomy M THOREK. *Riv de chir*, 1936, 2 1
- Conditions necessitating surgery following cholecystectomy, an analysis of sixty-six cases and a discussion of certain technical problems concerned in the removal of the gall bladder and operations upon the common bile duct. H L BEYE *Surg, Gynec. & Obst.*, 1936, 62 191
- Cholangiography N F HICKEN, R. R. BEST, and H. B HUNT *Ann Surg*, 1936, 103 210
- Congenital obstruction of the bile ducts A. H. MONTGOMERY. *Surg Clin North Am*, 1936, 16 93
- The diagnosis of incomplete non-calculous obstructions of the common duct P L MREZZI *Presse méd, Par*, 1936, 44 150
- Obliterative cholangitis involving the extrahepatic bile ducts. H. K. SOWLES *New England J Med*, 1936, 214 227
- The diagnosis and treatment of stones in the common bile duct. A W ALLEN *Surg, Gynec. & Obst.*, 1936, 62 347
- The value of functional study of the pancreas in diabetic mellitus G BARBERA and G ADINOLFI. *Polichin, Rome*, 1936, 43 sez med 27
- Contusion of the pancreas H COSTANTINI. *Mém l'Acad. de chir*, 1936, 61 1432
- Diagnostic aids in acute pancreatic diseases A study of eleven cases from the University Surgical Clinic of Giessen in 1933 H. PRÖBSTEL 1934 Giessen, Dissertation
- Acute pancreatitis A. C BABASTONOV *Sovet. khir*, 1935, 6 135
- The condition of the duct of Wirsung in pancreatitis P MOUTONGUET *Mém l'Acad de chir*, 1936, 62 25
- Pseudocyst of the pancreas and biliary lithiasis. E VICENS and A. NATALE *Bol Soc. de cirug de Rosario*, 1935, 2 358
- The diagnosis of carcinoma of the pancreas C A. SONES *J Iowa State M Soc*, 1936, 26 82
- Ruptures of the spleen L J STEPHANENKO *Sovet. khir*, 1935, 6 273

- A case of tuberculous splenomegaly. A contribution to the differential diagnosis of isolated tumors of the spleen. H. EISENBERG. 1935; Basel, Dissertation.
- Negative adrenal reaction in the spleen and splenic tumors. E. GRUBER, Polische Rundsch. 1935, 43, sez. prat. 55.
- Primary malignant tumors of the spleen. K. WATSWORTH. Zentralbl. f. Chir. 1935, p. 5716.
- The posterior approach to the spleen. J. FROELICH. Mém. Acad. de chir. 1936, 63, 2.

Miscellaneous

- Two unusual acute abdominal conditions. K. G. LAW. Lancet. Med. J. Australia, 1936, 1, 173.
- Abdominal contusion: clinical contributions to late laparotomy. G. MARSHALL. Wisconsin med. 1935, 31, 101.
- Retroperitoneal hemorrhage. S. LAM. Am. J. Surg. 1936, 31, 340.
- An anatomical and clinical study of four cases of pylophlebitis. L. BARRERA, V. FORT and A. LIZARRAT. Ann. d'anat. path. 1935, 18, 93. [542]

- Abdominal chyloous fistula following injury of the caecum. Chylo. E. MILLER. Zentralbl. f. Chir. 1935, p. 5401.
- Early diagnosis in abdominal surgery. E. L. ELLISON. Am. J. Surg. 1936, 31, 175.
- Cutaneous hyperalgesia occurring in some surgical diseases of the abdomen. M. RYDQVIST. Clin. chir. 1935, 1, 1066.
- Surgical complications of abdominal peritonitis. K. HOLMSTEDT. Zentralbl. f. Chir. 1935, p. 5405.
- The surgical treatment of abdominal wounds. E. K. YURANOV. Soviet khir. 1935, 6, 94.
- Surgery of closed abdominal wounds. G. DE TARLOVSKY. Surg. Clin. North Am. 1936, 10, 8.
- Meningeal blood transference during abdominal operations. B. K. CAMBERMAN and M. H. BAKER. Am. J. Obst. & Gynec. 1936, 3, 240.
- Ileus following abdominal operations. SEIFERT. Zentralbl. f. Chir. 1935, p. 5340.
- The recovery of mobility of the bowel following operations on the abdomen. E. SEIFERT. Moenchens med. Wochenschr. 1935, 1444.

GYNECOLOGY

Uterus

- Is the uterus a gland with an internal secretion? E. W. WINTER. J. Obst. & Gynec. Brit. Emp. 1936, 43, 1, 3.
- Uterine bleeding. A. J. ROSEY, A. TAYLOR, and H. GORDON. Am. J. Obst. & Gynec. 1936, 3, 300.
- Uterine bleeding: its significance, differential diagnosis, and treatment. T. C. JONES. Radiol. Rev. & Mississippi Val. M. J. 1936, 53, 1.
- Some changing concepts regarding the endometrium and their significance. V. B. COVIELLO and W. E. HICKELL. J. Indiana State M. Ass. 1936, 29, 57.
- A new method for replacing the displaced uterus. BRUCE BAIRD. Congr. rend. Soc. franc. de gynéc. 1935, 5, 361.
- The index of the excursions of the uterus in uterine prolapse. O. JUCKER. Schweiz. med. 1935, 41, 1087.
- Common lesions of the cervix. N. F. MILLER. J. Michigan State M. Soc. 1935, 23, 75.
- Cysts of the uterus. G. JEANROUX. J. de méd. de Bordeaux, 1935, 11, 85. [543]
- An adenomatous polyp of unusual type occurring in the body of the uterus. K. BOWEN and J. BAIRD. J. Obst. & Gynec. Brit. Emp. 1935, 43, 99.
- The diagnosis of endometrial hyperplasia. L. E. BURCH. Surg. Gynec. & Obst. 1936, 6, 273.
- The symptomatology of cancer of the uterine cervix. F. L. ABRAHAM. Surg. Clin. North Am. 1936, 10, 3.
- Early recognition and treatment of carcinoma of the cervix. H. MARSH. Med. Clin., 1935, 285.
- The diagnosis of carcinoma of the cervix. M. T. GOLDSTEIN. Surg. Clin. North Am. 1936, 10, 13.
- Carcinoma in the cervical stump. Sjöqvist. Bull. Soc. d'obst. et de gynéc. de Par. 1935, 24, 630.
- Carcinoma of the retained cervix or subtotal versus total hysterectomy. J. V. MINOS. Am. J. Obst. & Gynec. 1936, 31, 353.
- Carcinoma of the cervix complicated by pregnancy. J. L. BAIRD. Surg. Clin. North Am. 1936, 10, 51.
- Cancer of the cervix after subtotal hysterectomy. Sjöqvist. Bull. et notes Soc. d'obst. et de gynéc. de Par. 1935, 7, 350.
- Uterine corpus cancer. W. T. MURPHY. Radiology 1936, 26, 78.

- The control of pain in late and inoperable carcinoma of the cervix. W. C. DAWSON. Surg. Clin. North Am. 1936, 10, 37.
- Intravaginal alcohol injections and sympathectomy for pain associated with carcinoma of the cervix. J. P. GARDNER and H. E. SCHMIDT. Am. J. Obst. & Gynec. 1936, 31, 300.
- The lesion of treatment in cancer of the cervix. H. E. SCHMIDT. Surg. Clin. North Am. 1936, 10, 9.
- Treatment of cancer of the uterine body. A. R. KILGORE. Surg. Gynec. & Obst., 1936, 61, 412.
- Irradiation treatment in carcinoma of the uterus. W. E. COORLOW. Radiology 1936, 26, 93.
- The treatment of pre-operative complications of carcinoma of the cervix. F. H. FALLIS. Surg. Clin. North Am. 1936, 10, 45.
- The complications of surgical eradication of carcinoma of the uterine cervix. H. SCHMIDT. Surg. Clin. North Am. 1936, 10, 5.
- Newer statistical study of transvaginal drainage. L. GERSH-LAJON. Bull. de l'Assoc. med. longue frans. de l'Association de Nord, 1936, 46.
- Supercervical oophorectomy and high subtotal hysterectomy. H. PADOV. Rev. franc. de gynéc. et d'obst., 1935, 30, 947.
- Total or subtotal hysterectomy? A. DISCHER. Rev. soc. de chir. gynéc. y cancer, 1936, 3, 7, 5.

Adrenal and Peritoneal Conditions

- A case of traumatic torsion of normal adrena. A. CHANOWITZ and H. BEAUF. Rev. méd. de la Suisse Rom., 1935, p. 913. [545]
- The total factor in sterility among Chinese women. G. KINO. Chinese M. J. 1936, 30.
- The symptomatology of hydrosalpinx. G. MOTTA. Clin. obst. 1936, 35, 28.
- Salpingo oophoritis. O. FORTINELLE. Folio med. 1935, 6, 327.
- May we use vaccine in the treatment of acute salpingitis. M. FABRE. Congr. rend. Soc. franc. de gynéc. 1935, 5, 354.
- Primary carcinoma of the fallopian tubes. H. CHANOWITZ. Ann. Surg. 1936, 103, 390.

Ovarian hormones and ketonemia. BOTELLA LLUSIÀ and DE AMOLIBIA Y MENDIZÁBEL. Arch de med, cirug y especial, 1935, 17 16

Acute torsion of a pediculated hydatid of Morgagni in the female. P F CASAS Bol Soc de obst y ginec de Buenos Aires, 1935, 14 827

A study of corpus-luteum cysts E G VERNET Rev méd de Barcelona, 1935, 12 489

Reflections on the etiology and therapy of the scleromicrocystic ovary Cause and effect relationships to sterility F LORENZETTI Ginecologia, 1935, 1 1294 [544]

A case of ovarian struma Y TOHMA and M NARUSHI MA. Mitt. jap Ges Gynaek., 1935, 30

Clinical and pathological differentiation of certain special ovarian tumors E NOVAK and L A GRAY Am J Obst & Gynec., 1936, 31 213

Are there primary Krukenberg tumors? CELENTANO Arch. di ostet. e ginec., 1935, 42 731 [544]

A clinical study, and the pathogenesis of Brenner's tumors. E FAUVET Arch f Gynaek., 1935, 159 585

Clinical and physiopathological notes on arrhenoblastoma J A SCHOCKAERT Bruxelles-méd, 1936, 16 525

A clinical and pathological study of ovarian teratoma Z. von SZATHMÁRY Arch f Gynaek., 1935, 159 653

Granulosa-cell tumor and excessive hypertrophy of the uterus in a sixty-three-year-old patient Z. von SZATHMÁRY Zentralbl. f Gynaek., 1935, p 2477

A case of granulosa cell tumor, carcinoma of the bladder, and myoma of the uterus in a fifty seven year-old woman G OPITZ. Zentralbl f Gynaek., 1935, p 2104

External Genitalia

Vesicovaginal fistula L E PHANIELF Am J Obst & Gynec., 1936, 31 316 [544]

Urological aspects of vesicovaginal fistula W C QUINBY New England J Med, 1936, 214 415

The treatment of vesicovaginal fistulas G DE LA GARZA Rev. mex. de cirug, ginec. y cáncer, 1936, 4 33

Trichomonas vaginalis J L COLLIS J Obst & Gynec. Brit Emp, 1936, 43 87

Contrast stain for the rapid identification of trichomonas vaginalis J R MILLER J Am M Ass, 1936, 106 616

A case of vaginal botryoid sarcoma in a child E BERGSTRÖM Acta obst. et gynec. Scand., 1936 15 401

Esthromene as a definite morbid entity or as a syndrome J ROMERO Folha med, 1936, 17 13

Myiasis of the vulva M L PÉREZ and N ARENAS Bol Soc. de obst y ginec de Buenos Aires, 1935, 14 849

Extirpation of the lymph nodes in cancer of the clitoris E. HAUSEN Arch. franco-belges de chir, 1935/1936, 35 57

Miscellaneous

A brief history of obstetrics and gynecology in Virginia M P RUCKER Am J Obst & Gynec 1936, 31 187

My theory of menstruation R ARAYA Semana méd, 1936, 43 241

Membranous dysmenorrhea A J RISOLIA Semana méd, 1936, 43 177

Menstrual edema report of a case controlled by emmenin but not by theelin A J ATKINSON and A C Ivy J Am. M Ass, 1936, 106 515 [544]

On the existence of two maxima in the urinary elimination of mitosis coinciding respectively with the meiosis of menstruation. R MORICARD and J VILA Bull. Soc. d'obst. et de gynec. de Par., 1935, 24 610 [545]

A histological study of the peripheral nerve in the human female genitalia I On the peripheral nerve in the uterus

of adult Japanese. II On the peripheral nerve in the human fetal uterus III On the peripheral nerve in the human uterus in reference to the age, sex cycle, pregnancy, and parturition IV The relationship between the myoma uteri and the peripheral nerve M OZAKI Jap J Obst. & Gynec., 1936, 19 2

Bilateral, complicated, developmental disturbances of the female urinary genital apparatus I von CSEH Frankfurt Ztschr f Path., 1935, 48 117

Subphrenic collection of lipiodol following injection into the fallopian tube, with observations on reverse gravitation of pelvic exudates and the genitophrenic syndrome in women I C RUBIN Am J Obst & Gynec., 1936, 31 230

Old burn of the female perineum with plastic repair E C HAMBLEN and J R PERDUE Am J Surg, 1936, 31 361

Radium therapy of benign uterine hemorrhage L E PHANIELF Bruxelles-méd, 1936, 16 266

Thrombotic varicocele at the mouth of the female urethra A case report K A HILL. Colorado Med, 1936, 33 105

Mucocoele of the vermiform appendix W T DANNELEUTHER Am J Obst & Gynec., 1936, 31 342

Pelvic infection, laboratory aids in diagnosis and treatment T C PEIGHTAL New York State J M, 1936, 36 173

The Elliott treatment of pelvic inflammatory disease R FALLAS West. J Surg, Obst & Gynec., 1936, 44 88

Grippe and diseases of the internal genitalia. J TRAPL. Čas lék česk, 1935, p 977

Endometriosis R B CATTELL and N W SWINTON New England J Med, 1936, 214 341 [545]

Calcium quinine therapy in inflammations of the female genital organs E MARCHESE. Clin ostet., 1935, 37 730 [545]

Stone formation in the round ligament in the right inguinal canal A VALÉRIO Lyon chir, 1936, 33 62

The occurrence and treatment of visceral fistulas in diseases of the female genitalia E PELKONEN Acta Soc. med Fennicae Duodecim, 1935, 21 Fasc. 1 [546]

Curative and preventive serum therapy F JAYLE Compt rend Soc franc de gynec., 1935, 5 262

Local vaccine therapy in gynecology C F ROPHILLE Semana méd, 1936, 43 5

Hormone therapy of gynecological diseases W BENTIN Rev. Soc de med e cirurg do Rio de Janeiro, 1935, 49 405

Conservative laparotomy in gynecology F PAPP J de méd de Bordeaux, 1936, 113 7

The esthetic aspect of laparotomy F JAYLE Compt rend Soc franc. de gynec., 1935, 5 260

Clinico-experimental and histological studies of the healing of abdominal incisions for gynecological laparotomies A O I TURUNEN Acta Soc med Fennicae Duodecim, 1935, 21 Fasc. 1 [546]

Anesthesia and gynecology E R MURRAY Semana méd, 1936, 43 289

Sterility from the standpoint of the female P RUCKER. Virginia M Month., 1936, 62 656

Sterility a consideration of its etiology and treatment J J SWENSON Minnesota Med, 1936, 19 96

Nymphomania and sterility P ULRICH Compt. rend Soc franc. de gynec., 1935, 5 246

A clinicostatistical contribution for the first two years of the "Center for the Diagnosis and Cure of Sterility" E BERUTTI Ginecologia, 1935, 1 1235

Urnary tract disease as an indication for sterilization in women B ZLATMAN Rev franç de gynec et d'obst., 1935, 30 1054

OBSTETRICS

Pregnancy and Its Complications

The early diagnosis of pregnancy by the Barrovia papillary test. L. POULIOU. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 615.

A specimen of early late pregnancy (in situ). E. FARRA-MONTELLI. *J. Obst. & Gynec. Brit. Emp.* 1935, 43, 99.

A case of uni-ovular mono-zygotic twin pregnancy. T. NIKIFOROV. *Zentralbl. f. Gynæk.* 1935, p. 3007.

A case of quadruple pregnancy in situ. G. NICOLLE. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 61.

Symptoms of extra-uterine pregnancy. M. NIKIFOROV and G. VITTELLA. *Rev. Obstet.* 1935, 5, 237.

Extra-uterine pregnancy: an analysis of 313 cases from the Harlow Hospital. H. C. FAIR and M. A. ROSENFELD. *Surg. Gynec. & Obst.* 1935, 62, 258.

The reduction of mortality in ectopic gestation. C. A. GORDON. *Am. J. Obst. & Gynec.* 1935, 3, 350. [548]

Hystero-graphy in the diagnosis of abdominal pregnancy. J. P. GRAYSON. *J. Am. M. Ass.* 1935, 106, 606.

Tubal pregnancy. P. N. LOOBYER. *Monatsschr. f. Geburtsh. u. Gynæk.* 1935, 80, 25.

Simultaneous bilateral tubal pregnancy. G. DI PAOLA and A. L. LAURET. *Bol. Soc. de obst. y gynec. de Buenos Aires.* 1935, 14, 837.

Double unilateral tubal pregnancy in the wall-pars. O. VIANA. *Clin. obstet.* 1935, 37, 717.

Tors placental adhesion. O. CHAFFAY. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 64.

Microbial thrombosis in the fetal vessels of the placenta abortion at the end of three and one-half months. P. MOUTON-OUTET and L. GARRE. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 632.

Filices of the placenta. T. L. MONTGOMERY. *Am. J. Obst. & Gynec.* 1935, 3, 33. [548]

Angiofibroma of the placenta. R. M. BROOKS. *Monatsschr. f. Geburtsh. u. Gynæk.* 1935, 80, 361.

Premature separation of the placenta in private practice. R. L. DENHAM. *Am. J. Obst. & Gynec.* 1935, 3, 35.

The syndrome of the premature separation of the normally inserted placenta, delivery with breech presentation; death an hour later in the state of shock: autopsy: uterine apoplexy. V. LILLO and F. LUGAZ. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 638.

Abruptio placentae. H. H. SAVORY. *Northwest Med.* 1935, 35, 59.

Abdominal compression and vaginal tamponade in the treatment of abruptio placentae. R. J. HORTON. *New Eng. J. Med.* 1935, 14, 370.

A contribution to the knowledge of sacculosis of hematomas in fetal life. G. DELLINGER. *Gynecologia.* 1935, 114, 5. [548]

Diagnostic errors which may suggest desirability of radiography with particular reference to fetal hydrocephalus. V. CATRALA. *Bull. Soc. d'obst. et de gynéc. de Par.* 1935, 24, 625.

Fetal adenoma with hemorrhage. A. WHEAT. *Am. J. Surg.* 1935, 21, 372.

A fetus removed from the mother's thigh following rupture of the uterus. D. COUTH. *Proc. Roy. Soc. Med. Lond.* 1935, 30, 308.

Fetal death. C. A. C. LEOGHT. *Med. J. Australia.* 1935, 288.

Normal pregnancy in women following cesarean section with retained gas tampon in the uterus. R. SCHWARTZ. *Brussels med.* 1935, 6, 377.

Functional tests of the respiratory apparatus during pregnancy. V. MARITTI. *Chim. estr.*, 1935, 37, 705.

The sites of formation of the sex hormones in the normal pregnant organism in the light of hormone analyses in pregnancy continuing after removal of the ovaries. E. GUINARD. *Acta obst. et gynec. Scand.* 1935, 5, 343. [548]

The effect of pregnancy on the excretion of uric acid. F. H. DE BRADFORD. *J. diabet. med. et chir.* 1935, 40, 535.

Hemolytic control during pregnancy. ZAKARSKA-KARABAN, ANGELOVA, and URSU. *Rev. Obstet.* 1935, 5.

Bilateral dilatation of the ureter and pregnancy. F. SERRIO. *Clin. obstet.* 1935, 38, 30.

Spontaneous rupture of the uterus during pregnancy. C. ANDREU and I. RUGA. *Gynec. u. obst.*, 1935, 255.

Hemoperitoneum due to spontaneous rupture of a uterine vein in the eighth month of pregnancy. S. ROSSIGNOL. *Chim. obstet.* 1935, 37, 724.

The treatment of the toxemias of pregnancy. T. J. W. LILLY. *Virginia M. Month.* 1935, 6, 665.

Fatal hemoglobinemia: its source from quinine in early pregnancy. K. L. TEMPLER and C. T. JAYNE. *J. Am. M. Ass.* 1935, 106, 580.

Lymphogranulomatosis and pregnancy. M. P. COSTA and M. V. FALEIA. *Bol. Soc. de obst. y gynec. de Buenos Aires.* 1935, 14, 831.

Tuberculosis and pregnancy. A. H. MOUTON, R. A. BORGO, and J. VIACAVA. *Buenos Aires med.* 1935, 43, 257.

Glycogen granuloma and internal necrosis. F. WETTER. *Deutsche Zahnärzt. Wchnsch.* 1935, p. 796.

A study of cardiac disease complicating pregnancy. M. SCHULTZ. *West. J. Surg. Obst. & Gynec.* 1935, 44, 80.

Heart block and pregnancy: report of successful delivery. M. BRAMMER. *J. Am. M. Ass.* 1935, 106, 55. [548]

T. 0 cases showing symptoms and signs of slight degrees of illness during pregnancy. T. W. YUK. *Jap. J. Obst. & Gynec.* 1935, Vol. 9.

The upper urinary tract in pregnancy and the puerperium, with special reference to pyelitis of pregnancy. D. MAIZO. *J. Obst. & Gynec. Brit. Emp.* 1935, 43, 1.

Pyelitis of pregnancy in the light of conditions found in mice after the prolonged administration of estrogenic compounds. H. BUDOWA. *Proc. Roy. Soc. Med. Lond.* 1935, 30, 404.

Tuberculosis of the kidney in pregnancy. W. S. PRUE. *J. Urol.* 1935, 35, 50.

Kidney stones and pregnancy. G. TRISTOLLOPOULOS. *Zentralbl. f. Gynæk.* 1935, p. 306. [548]

Large vesical calculus and pregnancy. J. W. BAIRD. *J. Obst. & Gynec. Brit. Emp.* 1935, 43, 105.

Trichomonas vaginalis in pregnancy. C. L. WILSON, E. M. MCCABRELL, and S. CANNON. *J. Nat. M. Ass.* 1935, 28, 5.

Tumors and pregnancy. R. BILLO and C. R. CHIO. *Bol. Soc. de obst. y gynec. de Buenos Aires.* 1935, 14, 799.

Tumors and pregnancy. P. E. BONALDI. *Rev. med. de Rosario.* 1935, 45, 302.

Neurofibromatosis in pregnancy. M. V. FALEIA. *Bol. Soc. de obst. y gynec. de Buenos Aires.* 1935, 14, 854.

Carcinoma of the uterus and pregnancy. F. O. WOLLEBAEK. *Med. Rev. Norway.* 1935, 5, 351.

Spontaneous and stimulated abortion. M. CASTELLANOS. *Actual med. Peruana.* 1935, 306.

The management of cases of infected abortion. R. MARON. *J. de med. de Bordeaux.* 1935, 3, 11.

Labor and Its Complications

- The metabolism during labor BOTELLA LLUSIÀ Arch de med, cirug y especial 1935, 16 842
- Eruptive force of the uterus during labor C MOIR Lancet, 1936, 230 414.
- The causes and management of premature labor R A MacKENZIE. J Med Soc New Jersey, 1936, 33 16
- The anterior shoulder as guide to the engagement of the head and to the progress of labor N A PURANDARE J Obst. & Gynec Brit. Emp, 1936, 43 101
- Dystocia due to pelvic hydatid disease T BILBAO Semana méd, 1936, 43 273
- High longitudinal presentation with vertex presentation B SMRÓ Orvosi hetil., 1935, p 1075
- The treatment of breech presentations, with special reference to cases of extended legs and arms J W BURNS, C M MARSHALL, D ROY, A. BOURNE, and others Proc Roy Soc. Med Lond, 1936, 29 205 [549]
- Two cases of twin locking J S COLEMAN Lancet, 1936, 230 196
- Threatened rupture of the uterus in the test of labor E ARGONZ. Rev méd d Rosario, 1935, 25 1257
- Experiences with filling-up of the uterus following premature rupture of the membranes H VOHL 1935 Cologne, Dissertation
- Rupture of the symphysis following the use of the Kjelland forceps S COHL and A SPIREA Rev Obstet, 1935, 15 168
- Symphysiotomy M V FALSIA Semana méd, 1936, 43 28
- Cesarean section O H SCHWARZ and R PADDOCK J Missouri State M Ass, 1936, 33 45
- Cesarean section. M C LANDERO Rev mex de cirug, gynec y cáncer, 1936, 3 732
- Cesarean section Mortality and morbidity P H ARNOT West. J Surg, Obst & Gynec., 1936, 44 67
- Greater safety in cesarean sections F C GELLER Zentralbl. f. Gynaek., 1935, p 2409
- Cesarean section indicated by the presence of a megasigmoid K. KLAUS Čas lék česk, 1935, p 809
- Experiences with the Latzko cesarean section A J FLEISCHER and J I KUBNER. Surg, Gynec & Obst 1936, 62 238
- A new isthmocervical extraperitoneal cesarean section J LEÓN Semana méd, 1936, 43 13
- Cesarean section in infected cases M M BASDEN Brit. M J, 1936, 1 358
- Cervical embryotomy J A BERTI Bol Soc de obst y gynec de Buenos Aires, 1935, 14 841
- Stillbirths G A DAHL Minnesota Med 1936, 10 100
- The prevention of birth injury and its resulting mortality from the standpoint of the obstetrician C I GALLOWAY J Am M Ass, 1936, 106 595
- Expulsion per anus during delivery of a large left ovarian cyst. LEROUX Rev franç de gynec et d'obst, 1935, 30 961
- Obstetrical anesthesia for the clinic and in private practice. H. BUSCHBECK Deutsche med Wchnschr 1935, 2 167a.
- The use of evipal soluble in obstetrics F A KASSEBOHM and M J SCHREIBER. Am J Surg, 1936 31 265
- Puerperium and Its Complications**
- The Aschheim-Zondek test in the puerperium F A F CREW Brit M J, 1936 1 363

- Acute puerperal total inversion of the uterus F R PASHMAN and G LOVAZZANO Bol Soc de obst. y gynec. de Buenos Aires, 1935, 14 859
- Inversion of the uterus in two consecutive pregnancies A case report R E STEWART New England J Med, 1936, 214 373
- Intermediate repair of injuries resulting from childbirth S E TRACY Am J Obst. & Gynec, 1936, 31 333 [550]
- The effect of coramine on postpartum patients under the analgesic influence of some barbituric acid drugs A A LEVI and C M KRINSKI New England J Med, 1936 214 362
- Transfusion complications in anemia following delivery A BADESCI and Sr FORN Rev Obstet, 1935, 15 186
- The treatment of puerperal infection of various types by the intravenous injection of charcoal. A ACHARD Arch uruguayos de med cirug y especial, 1935, 7 689
- Puerperal sepsis from the viewpoint of surgery V BONEY Brit M J, 1936, 1 295 [550]
- Puerperal and postoperative colitis A HAMM Rev franç de gynec et d'obst, 1935, 30 965

Newborn

- Bi-ovular twins with unusually great weight difference (1300-3300 grams) A. V SÖVÉNHEÁZI Zentralbl f Gynaek., 1935, p 2611
- The care of premature babies G TEEBLEN Med Welt, 1935, p 932
- The effect of various analgesics on the newborn M S LEWIS South. M J, 1936, 29 178
- A case of obstetrical paraplegia with myelomalacia G HOERNER. Ann d'anat. path, 1935, 12 1049
- Transfusion in the infant W VERGE Bull. de l'Assoc med langue franç de l'Amerique du Nord, 1936, 2 66
- Jaundice of the newborn A case report. W C RECKLING Colorado Med, 1936, 33 117
- Cephalhematoma of the newborn A SJÖVALL Acta obst. et gynec Scand, 1936, 15 443 [550]
- The pathology of fatal birth injuries W E STUDDIFORD New York State J M, 1936, 36 247

Miscellaneous

- Whither midwifery? E F MURRAY Brit. M J, 1936, 1 375
- Maternal mortality and maternal mortality rates J LOUNG Am J Obst. & Gynec., 1936, 31 198 [551]
- Maternal mortality in the hospital D BAIRD Lancet, 1936, 230 295
- Discussion on the Scottish Departmental Report on Maternal Morbidity and Mortality C DOUGLAS, W HAMILTON, and R W JOHNSTONE Edinburgh M J, 1936, 43 21
- Constitution and maternity L. CASTALDI Rassegna internaz. di clin e terap, 1935, 16 1215
- A case of retention of a dead fetus M BROUHA and R BASTEN Bruxelles-méd, 1936, 16 397
- Wheat-germ-oil (Vitamin E) therapy in obstetrics E M WATSON and W P TEW Am J Obst. & Gynec., 1936, 31 352
- The relation of deficiency of Vitamin E to the antiproteolytic factor found in the serum of aborting women. E. SHUTE. J Obst. & Gynec. Brit Emp, 1936, 43 74
- The effect of luteum hormones on abortion in the rat provoked by the administration of urine from the pregnant woman FERRICANO Arch di ostet e gynec., 1935, 42 717

GENITO-URINARY SURGERY

Adrenal, Kidney and Ureter

- Adrenal insufficiency resulting from partial or total atrophy of the adrenal glands, early clinical recognition. G. L. WELLS, JR. *Arch Int Med* 1935, 57, 273.
- The suprarenal glands and surgical infection. A. Z. KUZNETS. *Soviet Med* 1935, 7, 3.
- Adisson's disease. Report of a case. J. M. CORVOLETTA and W. J. MORRIS. *N. J. Med Soc New Jersey* 1935, 33, 90.
- Adisson's disease with typical granules of the suprarenal capsules. T. DIAMANTINO. *Bull et mèm Soc méd d'hop de Par* 1935, 51, 11.
- The treatment of Adisson's disease with corticosteroidal extract. SERGENT, LAUNAY and RACINE. *Bull et mèm Soc méd d'hop de Par* 1935, 51, 75.
- Adrenal cortical tumors. G. F. CANNELL, R. F. LORCA, R. KURSKIN, A. P. STOUT, and F. M. SMITH. *Surg Gynec & Obst* 1935, 63, 157.
- Neuroma of the adrenal. W. LE FEVRE. *J Michigan State M. Soc.*, 1935, 35, 84.
- Suprarenal tumor with hypophyseal metastases and paralytic of the oculomotoric tracts with cerebral hemorrhage. A. GARCIA, M. J. VERNONVILLE, and A. J. PETER. *Rev mède Let Am* 1935, 21, 3.
- Primary cortical carcinoma of the suprarenal. N. S. SERRAVALLO and G. W. LOUGHEED. *Canadian M. Ass J* 1935, 31, 158.
- Ascending and descending pyelography. ROSSIO. *Prog de la chie Madrid* 1935, 83, 323.
- Some observations on lenticle urology with special reference to ectopic kidneys and arthrography. W. E. BREWSTER. *J Urol* 1935, 35, 341.
- Hypoplasia of the left kidney. J. CARRIA. *Proc Roy Soc Med Lond* 1935, 29, 364.
- Unilateral renal atrophy. R. L. MASCHKE. *Rev mède-quirurg de patol interne*, 1935, 4, 701.
- The function of the reniniferous fibers of the kidneys under normal and pathological conditions. A clinical and experimental study. A. FAVELLINI and A. CAMPANINI. *Arch ital di chie*, 1935, 4, 731.
- Renal aneurysm and the denuding function of the kidney. CARRER MARIANO and SCHREIBER MARCO. *Rev Soc argent de med* 1935, 1, 18.
- A study of the lymphatics in the fatty capsule of the kidney by means of colloidal thorium. G. CHILDA, A. CARON VETTO and A. NICOTRA. *Radioi med* 1935, 23, 36.
- The rôle and importance of the renal parathyroid lymphatics in the physiology and pathology of the kidney. C. JACOBSEN. *J d'etrol mède et chir* 1935, 40, 31.
- The pathology and clinic of transverse kidney injuries. P. E. GOSWORTHY. *Soviet Med* 1935, 8, 79.
- Unilateral renal atrophy and their disturbances. O. W. DAVENPORT. *J Kansas M. Soc* 1935, 37, 45.
- Renal ptosis. S. R. ROBERTSON and R. C. SCHLEIER. *J Urol* 1935, 35, 123.
- The symptomatology, renal pathology and treatment of nephroptosis. J. C. BIRCHALL. *J Urol* 1935, 35, 125.
- A simple test for unilateral hydronephrosis. H. LAMM FISCHER. *J urol Chir* 1935, 41, 280.
- Velde's water test and unilateral bend, international hydronephrosis. H. LAMM FISCHER. *J urol Chir* 1935, 41, 284.
- Plastic operation for hydronephrosis: report of 19 cases. H. BAILEY. *Proc Roy Soc Med Lond* 1935, 29, 371.

- The treatment of ruptured kidney with a case report. F. M. FORTLEY. *West J Surg Obst & Gynec*, 1935, 41, 117.
- Deceased kidneys: four specimens. R. PAYNE. *Proc Roy Soc Med Lond* 1935, 29, 373.
- Pyelitis and urethritis cystica. F. HIRSH, C. M. JOHNSON, and J. H. MCCORMICK. *J Urol* 1935, 35, 174.
- Treatment of acute infections of the upper urinary tract. J. F. GILLESPIE. *Vergadia M. Month* 1935, 61, 611.
- Carbuncle of the kidney. R. C. ORRIS and L. E. PARKER. *J Urol* 1935, 35, 1.
- Renal and ureteral lithiasis. J. T. PIERCE. *Minnesota Med* 1935, 10, 103.
- An hypothesis for the origin of renal calculus. A. RAYNALL. *New England J Med* 1935, 212, 334.
- The treatment of renal and ureteral stones and masses to prevent their recidivism. H. SCHREIBER. *Therap d'Urologie* 1935, 76, 505.
- Symmetrical cortical necrosis of the kidneys. G. F. CANNELL. *J Obst & Gynec Brit Emp*, 1935, 43, 66.
- Polycystic disease of the kidneys. W. E. COOPER. *Lancet*, 1935, 330, 318.
- A case of uremia—polycystic kidneys. K. M. BARR. *Rhode Island M. J* 1935, 9, 53.
- Polycystic and tuberculous kidney. C. ROBERTS, J. CANNELL, and P. BARRELL. *J d'etrol mède et chir* 1935, 40, 473.
- Neoplasm of the right kidney. J. CARRER. *Proc Roy Soc Med Lond* 1935, 29, 365.
- Bilateral malignant lesions of the upper urinary tract. H. S. JACK. *J Urol* 1935, 35, 300.
- Hemotomata and carbuncles of the renal pelvis. A. E. ROBERTS. *Proc Roy Soc Med Lond* 1935, 29, 379.
- Carbuncle of the kidney in an infant. M. F. NICHOLS. *Proc Roy Soc Med Lond* 1935, 29, 377.
- The rôle of anomalies of the kidney and ureter in the causation of surgical conditions. R. CANNELL. *J. Am M. Ass* 1935, 106, 83.
- Experimental renal section. J. GRAY. *Lancet*, 1935, 330, 369.
- Bilateral double ureter. H. A. MASCHKE and G. RIZ MOURAO. *Rev mède-quirurg de patol interne*, 1935, 4, 761.
- Ectopic ureter with extravasated urine. J. L. CARRER and H. A. BUCHER. *J Urol* 1935, 35, 190.
- The effect of neoplasms upon the human ureter: clinical applications. A. F. OGDEN and H. E. CARLSON. *South M. J* 1935, 29, 160.
- My experience with the Coffey method of urethrostomy in anatomical conditions. M. CARRER. *Prog de la chie Madrid*, 1935, 3, 813.
- Ureterovaginal carcinoma. Cystoureter—urethrovaginal fistula. W. C. QUINCY. *New England J Med* 1935, 212, 333.
- The preferred technique for surgery of the ureter. L. O. MARTI. *Rev de chir de Barcelona*, 1935, 6, 2.

Bladder, Urethra, and Penis

- A clinical study of the control of the bladder by the central nervous system. O. R. LARSON. *Brit J Urol* 1935, 7, 191.
- Descending cysto-urethrography, technique and indications. L. MILLER. *J d'etrol mède et chir* 1935, 40, 477.

Bladder displacement secondary to suppurative arthritis of the hip and osteomyelitis of the pelvic bones in children, operation for impending perforation A B HEPLER J Urol, 1936, 35 32 [555]

A study of bladder disturbances in spina bifida O R LANGWORTHY and J E DEES J Urol, 1936, 35 213

Obstructions at the bladder neck in infants and children J R CAULK South M J, 1936, 29 142

Vesical diverticulum with calculi in a woman J CARRER Proc Roy Soc Med, Lond, 1936, 29 363

A method of tying in a catheter G B DAVIS Lancet 1936, 230 255

The endovesical treatment of relative urinary incontinence R CHWALLA Wien Klin Wchnschr, 1935, 2 946

Complete cystectomy for recurrent carcinoma of the bladder H BAILLY Proc Roy Soc Med Lond, 1936, 29 370

Traumatic injuries of the urethra and their treatment J M JGER and A S MICHELSON Sovit khir, 1935, 7 126

Urethral stricture S F WILDMAN J Oklahoma State M Ass, 1936, 29 54

Primary carcinoma of the female urethra treated by complete extirpation of the urethra J A I WARRIS and A D SCHNEIDER J Urol, 1936, 35 235

Total urethrostomy in the female a technique H B FREIBERG J Med, Cincinnati, 1936, 16 6 6

Dermatitis of the penis caused by ephedrine I HOLLANDER J Am M Ass, 1936, 106 706

Cure of penile, penoscrotal, and perineal crotal hypospadias by the procedure of Duplay A FLORIN J d'urolog med et chir, 1935, 40 484 [555]

Genital Organs

The effect of sex hormones on the prostate of monkeys S ZUCKERMAN and A S PAPPES Lancet, 1936, 230 242

Mammary extracts in the treatment of prostatic diseases A VALERIO Arch brasil de med, 1935, 25 242

Urethrography in the study of prostatic diverticula A MADRIN Rev mex. de cirug, gynec, y cancer 1935, 3 703

Modern views on hypertrophy of the prostate P VIEHMAN Lancet, 1936, 230 307 [556]

The pathology of prostatic hypertrophy E W HIRSCH J Urol, 1936, 35 227

Rupture of the urinary bladder associated with prostatic hypertrophy A J SCHOLL J Am M Ass, 1936, 106 701

Late results of operative and conservative treatment of prostatic hypertrophy W HIEMSCH Deutsche Ztschr f

Chir, 1935, 245 583

Prostatic resection C D MAITLAND Brit M J, 1936, 1 203

The present status of prostatic resection W W HEWINS J Indiana State M Ass, 1936, 29 73

Transurethral prostatic resection a series of operations on 100 patients J W S LAIDLEY and M S S EARLAM Med J Australia, 1936, 1 80 [556]

A comparison of enucleation and transurethral prostatic resection R L HOFFMANN J Missouri State M Ass, 1936, 33 43

Prostatic malignancy as revealed by the resectoscope W F SCOTT, R C MCQUIDDY, and T COLLINS South M J, 1936, 29 163

Treatment of the malignant prostate K M WALKER Brit M J, 1936, 1 201

The treatment of prostatic carcinoma B S BARRINGER Surg, Gynec & Obst., 1936, 62 410

Prostatectomy A C MORSON Brit. M J, 1936, 1 195

Osteitis pubis following suprapubic prostatectomy J A LAZARUS Ann Surg, 1936, 103 310

Chronic filariasis of the spermatic cord Z M KAU Chinese M J, 1936, 50 40

Enormous scrotal hernias F M CADENAT Mém Acad de chir, 1936, 62 6

Calcium deposits and corpora amyacea in the epididymis A MARSELLA Policlin, Rome, 1936, 43 sez chir 12

Epididymomata, three specimens M BAILLIE Proc Roy Soc Med, Lond, 1936, 29 367

Orchepididymitis in cryptorchidism N MILJANIC and D PRIGLMAJER Verhandl d r Kong jugoslav chir Ges 1934, 4 892

Neoplasms in cryptorchids W G CHRISTOFFERSEN and S L OWEN Am J Cancer, 1936, 26 259

The imperfectly migrated testis P WILLIAMS Lancet, 1936, 230 426

A pathological and clinical study of testicular tumors L INDELISEN Deutsche Ztschr f Chir, 1935, 245 717

Teratoma of the testis with tridermal metastases, a case report J E SHADEL Am J Cancer, 1936, 26 316

Miscellaneous

Intravenous and retrograde urography R E CUMMING and G E CHITTENDEN J Am M Ass, 1936, 106 602

Extraneous shadows complicating urography, with special reference to radiopaque pills A HARTUNG and T J WACHOWSKI J Am M Ass, 1936, 106 596

The diagnosis of traumatic lesions of the urinary tract I O COE Am J Roentgenol, 1936, 35 218

Congenital canals and cysts of the genitoperineal raphe J H NEFF Am J Surg, 1936, 31 308 [557]

Alcoholization of nerves in functional enuresis in man L NAZAROV Rev de chir, Par, 1935, 54 762

Operative treatment of urinary incontinence M DOUGLASS Am J Obst & Gynec, 1936, 31 268

Calculus anura J SCHWAPITZ Am J Surg, 1936, 31 300

Rare causes of urinary hemorrhage ROEDELIUS Zentralbl f Chir, 1935, p 2827

Gonadotropic hormones in the treatment of sterility in man V E LLOYD Lancet, 1936, 230 474

Hyperpyrexia in gonococcal infections A U DESJARDINS, L C STUHLER, and W C POPP Bull de L'Assoc med langue franc de l'Amerique du Nord, 1936, 2 1

Acridavine as a urinary antiseptic E W ASSINDER Lancet, 1936, 230 304

The Frei test for lymphogranuloma inguinale experiences with antigens made from mouse brain. M J STRAUSS and M E HOWARD J Am. M Ass, 1936, 106 517

SURGERY OF THE BONES JOINTS MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Experimental studies of the pathogenesis of osteogenic sarcomas carried out with the aid of grafts of joint cartilage. S. PEREIRA and M. DUMORTIER. *Presse med. Par.* 1935 44 82 [546]

Unusual bone changes in leukemia. J. J. CLARK. *Radiology* 1935, 30 357

An experimental study of bone regeneration and vitamin C. H. HANER. *Zentralbl. f. Chir.* 1935 p. 2075

Hereditary disease of bone. GARDNER. *Med. Klin.* 1935 305

Infection spicules on bone and their significance in the etiology of metastasizing bone diseases. K. RYMER. *Zentralbl. f. Chir.* 1935 p. 2068

Rickets. J. C. SPENCE. *Practitioner* 1935, 95 190

The roentgen diagnosis of osteoporosis and its limitations. E. LACHMANN and M. WERT. *N. Radiology* 1935, 30 165

Acute post-traumatic osteoporosis. C. B. HARRIS. *West Virginia M. J.* 1935, 31 78

Calcium and phosphorus metabolism in osteomalacia. II. Report of an unusual case in a male with acute parathyroid poisoning. H. J. CARL, S. K. CHOW, and L. L. LARSEN. *W. Va. M. J.* 1935, 31 79

Post-traumatic acute bone atrophy: a clinical entity. I. B. GRAY. *Arch. Surg.* 1935, 99 773

Pathological and biochemical changes in skeletal dystrophies: an analysis of the results of treatment of parathyroidectomized animals. E. L. COCHRAN. *Arch. Surg.* 1935, 99 33

Osteodystrophic diseases and their differentiation. H. HANER. *Deutsche Zeitsch. f. Chir.* 1935, 315 64

The histopathological mechanisms of bone rarefaction in cases. A. POISSON. *Rev. Soc. de med. chir. de Rio de Janeiro*, 1935, 40 53

Roentgen diagnosis of osteomyelitis in the acute stage. J. BARTO. *Neogoya J. Med. Sc.* 1935, 9 50

Considerations regarding fifty new cases of osteomyelitis of the long bones in children. L. COHEN. *Rev. de chir. Par.* 1935 54 708 [548]

The prevention of chronic osteomyelitis. J. A. REY. *J. Missouri State M. Assn.* 1935, 33 90

Experimental studies on osteomyelitic infection. G. BARNER and M. CAULOVIC. *Rev. de chir. Pa.* 1935 34 802 [541]

The treatment of typhoid osteitis. K. HANER. *Deutsche Zeitsch. f. Chir.* 1935, 315 435

Bone tuberculosis and injury. A. W. FRANK. *Zentralbl. f. Chir.* 1935, p. 54

The tuberculous plaques in tuberculosis of the bones and joints. E. M. GORDON-FINKELESTEIN. *Soviet Med.* 1935, 7 81

The genesis of Paget's disease of bone. J. FROST. *Brit. J. Path. Anat.* 1935, 90 [542]

Paget's disease of bone and trauma: localization in the region of injury. J. A. LATHAM. *Presse med. Par.* 1935, 44 45

Paget's disease and thallium homoplasy. H. A. MACKENZIE, J. F. MACKENZIE, and C. KENNEDY. *Rev. Assoc. med. Argent.* 1935, 49 475

The diagnosis of isolated disease of bone. O. ILLAUS. *Arch. Surg.* 1935, 99 43 6

Animal experimental study of osteitis in the joint ends of bone. C. BARNER. *Brit. Med. Jour.* 1935, 55 57

A new treatment of osteitis. G. I. SCOTT. *Brit. M. J.* 1935, 1 30

Minipolitive treatment of osteitis and chronic osteitis. T. S. WILSON. *Brit. M. J.* 1935, 1 308 [543]

A case of generalized osteitis fibrosa. L. G. SALAMAN. *Rev. de chir. de Barcelona*, 1935, 6 35

Osteitis fibrosa generalisata of von Recklinghausen. K. RYMER. *Zentralbl. f. Chir.* 1935, p. 2068

A clinical and therapeutic consideration of von Recklinghausen's disease and "Ewing's" disease. N. S. MUKHOPADHYAY and M. BANERJEE. *Verhandl. d. Kong. indischer chir. Ges.* 1934, 4 937

The phenomenon of demossifying resorption in generalized fibrous osteodystrophy of von Recklinghausen. K. TATTA. *Arch. f. path. Anat.* 1935, 205 901

Multiple myeloma. G. D. CARLSON. *Texas State J. M.* 1935, 31 417

A case of multiple myeloma: radiological and myelographic studies. CASAROT, CACCIARI, and TONER. *Med. et inf. Soc. med. d. hop. de Par.* 1935, 51 33

Giant cell tumors of bone. K. RYMER. *Zentralbl. f. Chir.* 1935, p. 2068

Malignant bone (sarcoma). CLAVEL. *Prog. de la chim. Madrid*, 1935, 24 60

Hemolytic anemia in carcinoma of the bone marrow. T. R. WATSON. *Am. J. M. Sc.* 1935, 191 140

Modern classification of bone sarcomas. J. T. RANNEY. *Med. Items*, 1935, 30

A case of osteosarcoma (marble bones) complicated by osteogenic sarcoma. H. D. KIRBY. *Am. J. Roentgenol.* 1935, 33 1

A case of atypical bilateral dyschondroplasia. O. CARLTON and A. M. LUTHER. *Rev. de chir.* 1935, 9

Congenital arthrogryposis. M. A. KORTNEY. *Soviet Med.* 1935, 8 00

The roentgen aspects of chronic arthritis. E. W. BRACKMAN. *Am. J. Roentgenol.* 1935 33 195

A study of the roentgenological findings in various types of chronic arthritis. G. D. TAYLOR, A. B. FINKELSTEIN, H. KASABACH, and M. H. DANNON. *J. Lab. & Clin. Med.* 1935, 401

Chronic arthritis: synovitis. T. P. SEARS, C. F. KIRKPATRICK, D. A. LILLY, J. G. RYAN, and C. E. SAYERS. *Colorado Med.* 1935, 33 84

Experimental and pathological studies in the degenerative type of arthritis. W. BAKER and G. A. BERNARD. *J. Bone & Joint Surg.* 1935, 8 [547]

Accelerating factors in chronic hypertrophic arthritis (osteoarthritis). R. L. HUNTER and W. A. WATSON. *J. Lab. & Clin. Med.* 1935, 448

Protein studies in trophic (rheumatoid) and hypertrophic arthritis. J. S. DAVIS, JR. *J. Lab. & Clin. Med.* 1935, 478

Bacteriological and immunological studies in arthritis. I. Results of blood cultures in different forms of arthritis. C. McKEOWN, R. C. ALEXANDER, and J. J. BOWEN. *J. Lab. & Clin. Med.* 1935, 453

Bacteriological and immunological studies in arthritis. II. Results of various immunological tests in different forms of arthritis. C. McKEOWN, J. J. BOWEN, and R. C. ALEXANDER. *J. Lab. & Clin. Med.* 1935, 465

Acute septic arthritis. G. W. ANDERSON. *Canadian M. Assn. J.* 1935, 34 77

Streptococcal dislocation in the pathogenesis of chronic rheumatoid arthritis. I. G. RABOPOULOS and E. POZ. *N. Y. J. Bone & Joint Surg.* 1935, 8 9 [548]

What can be expected from the orthopedic care of arthritis? L T SWANN. *J Lab & Clin Med*, 1936, 21 51

Home treatment of chronic arthritis by physical therapy J S CORLIE. *J Lab & Clin Med*, 1936, 21 497

The present status of fever therapy in the treatment of pyarthral arthritis chronic infectious (atrophic) arthritis and other forms of "rheumatism" P S HENCH. *J Lab & Clin Med*, 1936, 21 52.

Chronic atrophic arthritis: the effect of a high carbohydrate diet and insulin on the symptoms and respiratory metabolism. B D BOWEN and I M LOCKIE. *J Lab & Clin Med*, 1936, 21 505

The treatment of atrophic (rheumatoid) arthritis with proteic concentrate L I HARRISON. *J Lab & Clin Med*, 1936, 21 516

The use of arthropen in the treatment of chronic arthritis R G SYMPER, C H TRAFLET, C A ZIEGLER, M C KILIA, and F J LEST. *J Lab & Clin Med*, 1936, 21 541

The value of the Verne's resorcin test in the diagnosis and prognosis of osteo-articular tuberculosis in the infant A RICHARD, M MOYER, and M POUDEVIN. *Mém l Acad de chir*, 1935, 61 1491

The pathology of synovial effusions D H COLLINS. *J Path & Bacteriol*, 1936, 42 113 [563]

The formation of joint mice H TAMMANN. *Centr. klin. Chir*, 1935, 162 434

Heat and muscular work L A SHORRY and A M BARTER. *Surg. Gynec. & Obst.*, 1936, 62 475

Sprains W K JENNINGS. *Surg. Clin North Am*, 1936, 16 171

Ischemic contracture. A STEINBLER. *Surg. Gynec. & Obst.*, 1936, 62 355

Angiomas of the skeletal muscle, combined operative and radiation therapy H B THOMAS. *Am J Surg*, 1936, 51 354

Pain in the shoulder girdle, arm, and precordium due to cervical arthritis S S HANTLIG. *J Am M Ass*, 1936, 105 523

Seven cases of tuberculosis of the shoulder in children R MACKEON. *Nord med Tidsskr*, 1935, p 140

Malignant suprarrenal tumor with metastasis in the upper end of the humerus J BEAUME. *Mém l Acad de chir*, 1935, 61 1449

Acute osteomyelitis of the forearm BRILLIO. *Zentralbl f Chir*, 1935, p 2585

Malformations of the head of the radius M FRISCH. *Arch. f klin Chir*, 1935, 182 783

Four post typhoidal suppurative complications (a) osteomyelitis of the ulna, (b) osteomyelitis of a rib and

suppurative ovaritis, (c) subdiaphragmatic abscess and (d) purulent pleurisy P PLEPIDIS. *Mém l Acad de chir*, 1935, 61 1464

Dupuytren's contracture H W MEYERDIN. *Arch. Surg*, 1936, 32 320 [564]

Physiotherapy and sequelae of trauma to the wrist. Indications and technique P FORTON. *J de méd de Bordeaux*, 1935, 112 934

Diseases of the sesamoid bones M G R MALPATTI. *Bol. inst. de clin quir, Univ. de Buenos Aires*, 1935, 11 147

The common back sprain B D JUDOVICH and W BATES. *Med Rec., New York*, 1936, 143 96

Lumbosacral strain G A G MITCHELL. *Lancet*, 1936, 230 75

Lumbosacral pain A A REKKANDT. *Soviet Khir*, 1935, 7 114.

Bony anomalies of the lumbosacral vertebra F O ALARCO. *Rev de ortop y traumatol*, 1935, 5 181

Kuemmel's disease J P HOSFORD. *Lancet*, 1936, 230 240 [565]

Acute and chronic vertebral osteomyelitis U N RICHMOND. *Soviet Khir*, 1935, 8 115

The clinical and roentgenological diagnosis of vertebral osteomyelitis A M TRUKHOMITICH. *Soviet Khir*, 1935, 8 110

Intervertebral calcinosis J MISOZ ARBAT and P PRITCHES. *Rev de chirug de Barcelona*, 1936, 6 22

Congenital and acquired synostosis of the vertebra A NELLE. 1935. Muenster: W. Dissertation

A clinical study of Pott's paraplegia of the tubetic type M FISA. *Polichin. Rome*, 1936, 44 sez. prat 80

Anatomy and pathology of the hip joints. P MORVILLE. *Nord med Tidsskr*, 1935, pp 1331, 1370

The mechanics of pathological changes in the hip GILLES and BRINNE. *Arch f orthop Chir*, 1935, 36 91

Early diagnosis of coxa vara MEYER BECKDORFF. *Zentralbl f Chir*, 1935, p 2506

Osteo arthritis of the hip and knee J I MACKENZIE. *Brit M J*, 1936, 1 306

Epiphytosis of the iliac crest and other bony dystrophies of adolescence SUPREL, DEBIDIN and BOELLE. *Mém l Acad de chir*, 1935, 61 1455

Chronic infection of the sacro iliac joints as a possible cause of spondylitis adolescentis S G SCOTT. *Brit J Radiol*, 1936, 9 126

Errors in the diagnosis and treatment of pubic tuberculosis M G LOMAZOV. *Soviet Khir*, 1935, 8 130

The etiology of trochanteric bursitis Z W BASILFENSKAYA. *Arch f orthop Chir*, 1935, 35 671

Genu recurvatum MAU. *Zentralbl f Chir*, 1935, p 2521

A case of double cubital patella OLLER and RUIZ GILJO. *Prog de la clin., Madrid*, 1935, 23 862

A previously undescribed anomaly of the knee, accessory sesamoid at the inferior border of the patella D VAJANO. *Riforma med*, 1935, 51 1862

The diagnosis of meniscal injuries with and without contrast filling of the joint K LEVER. 1935 Leipzig, Dissertation

Traumatic lesions of the knee joint J S MACMAHON. *Med J Australia*, 1936, 1 221

Internal derangements of the knee joint MCC CALLOW. *Med J Australia*, 1936, 1 228

Rupture and other diseases of the menisci of the knee. F MANDEL. *Rassegna internaz di clin e terap*, 1935, 16 1167

Regeneration of the semilunar cartilage D KING. *Surg, Gynec. & Obst.*, 1936, 62 167

Suppurative arthritis of the knee joint. G W N EGGERS. *Texas State J M*, 1936, 31 623

A contribution on congenital hypertrophy of the tibia A AMORIM. *Rev. Soc. de med e cirurg do Rio de Janeiro*, 1935, 49 48

The dynamics of the worker's foot during occupation. J P KALLISTOV. *Soviet Khir*, 1935, 7 131

Flat foot, exostosis of the os calcis and arthritis G C BERTANT. *Semana méd*, 1936, 43 185

Achilles bursitis MAU. *Zentralbl f Chir*, 1935, p 2821

A new case of tarsal scaphoiditis in the infant. CHUREAU, GUÉNEAU, and DETOUILLO. *Bull. et mém. Soc. d. chirurgiens de Par*, 1935, 27 611

Ankylosis of the metatarsal phalangeal joint of the great toe in industrial surgery A FABER. *Arch f orthop Chir*, 1935, 35 640

Foot statics and surgery F J COTTON. *New England J Med.*, 1936, 214 353

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

- Primary amputation in traumatic cases. R D MAI
Soviet khir 1935, 6 574
- Amputation and amelo gangrene. G. MITYAY. Mém
l'Acad de chir 1936 6 22
- Severe gastric hemorrhage following operations upon
bone. B. BLANKOVY. Bordeaux chir 1936, p 60
- The treatment of penetrating wounds of the large joints
H. HIRSHFELD. Zentralbl f Chir 1935, p 270
- The immediate and delayed tendon repair. M L.
MAISON. Surg Gynec & Obst 1936, 62 449
- The treatment of torticollis. E. HANSEN. Berg Chr.
North Am., 1936, 16 5
- Further tendon plastic and minor plastic operations for
radial paralysis by the method of Sedcock. GOMBERG
Zentralbl f Chir 1935, p 2800
- The technique of repair of tendons of the hand. L. A.
IYER. Rev med. d. Rosario, 1935, 23 101
- Good operative result following transposition of the
flexor digitorum profundus in opposition to the
thumb. A review of the methods. R. GOMBERG and K.
FRIEDENBERG. Arch f orthop Chir 1935, 35 575 [545]
- The Galleaux treatment of scrobes. BLANKOVY. Arch
franco-belges de chir 1936, 55 21
- Resection of a scrobae process for partial thoracic
kyphosis. G. VIDAL-NAQUET. Bull. et mémo Soc. d.
chirurgiens de Par 1935, 27 571
- Manipulative surgery with special reference to low
back pain and symptomatic scoliosis. P. LARIVE. Surg.
Chir North Am. 1936 10 53
- The basic, indications, and contra indications of anky-
losing operations on the spine. J. FARILL. Rev de chir.
Hosp Jueves, Mex 1936, 7 233
- A note on the treatment of osteo-arthritis of the hip.
G. SCOT. Practitioner, 1936, 96 27
- Contribution on arthrodesis for tuberculous arthritis of
the hip. KARRAS. Zentralbl f Chir 1935, p 525
- Femoral osteotomy in the treatment of osteo-arthritis
of the hip. S. A. S. MAIZERS. Brit M J 1936, 1 304
- Plastic operations on the acetabulum. F. SCHMIDT.
Zentralbl f Chir 1935, p 725
- The technique of intertrochanteric disarticulation.
R. LAROCHE and E. STULL. Presse méd. Par 1936, 44
65
- Amputation of the thigh as an emergency measure.
M. C. ROSARIO NAVA y ROJAS. Rev de chir. Hosp.
Jueves, Mex 1935, 6 257
- Amputation of the lower extremity as a heavy traumatic
injury. A. T. SUTER and I. I. SOLOVYOV. Soviet khir
1935, 6 385
- Replacement of an incarcerated aneurysm. J. POLLE.
Schr. u. med. Wchnschr. 1935, 10
- Hemipelvic transplantation of a half of the knee joint.
E. LAROCHE. Zentralbl f Chir 1935, p 524
- Late results of arthroplasty of the knee. P. MOCOT.
Mém l'Acad de chir 1935, 6 148
- The result at the end of thirteen years of an osteoperi-
osteal graft into an osteosynthetic cavity of the superior end
of the tibia. P. MOCOT. Mém l'Acad de chir 1936
6 31
- A case of echinococcus of the gastrocnemius muscles.
M. T. MINCHAY. Soviet khir 1935, p 50
- A case of pes equinovarus treated surgically. A. S.
VORONKA. Rev de chir. Hosp Jueves, Mex. 1936 7
279
- The Gall horse-block operation for foot-drop. T. F.
WARRINGTON and W. M. CHAIKIN. J. Am. M. Assn. 1936,
44 417

- Surgical treatment of paralytic pes calcaneus. F. JO-
VINO. Riforma med., 1935, 511 1757
- Astragaloclony. A. MONTENEO. Rev bras de chir
1935, 4 530
- A new operative method for treating inflamed valgus. K.
LAKSHMINARAYAN. Chirugy, 1935, 7 630

Fractures and Dislocations

- Fractures due to muscular pull as sport injuries. H.
COHEN. Arch f orthop Chir 1935, 35 963
- The association of fractures and Paget's disease (osteitis
deformans). C. A. TAYLOR. New York State J. M. 1936,
30 222
- Army and highway first aid stations. E. P. PALMER.
Surg, Gynec. & Obst., 1936, 62 446
- Bronchial radiography for a fracture. W. B. R. MON-
TEITH. Lancet, 1936, 230 254
- The primary treatment of open fractures. A. CASTANON.
Rev de chir. Hosp Jueves, Mex 1936, 7 24
- The treatment of compound fractures. G. V. I. VOR.
Soviet khir 1935, 6 513
- The conservative treatment of compound fractures.
W. G. STEIN. West Virginia M J 1936, 3 21
- The use of artificial plastic plates in the treatment of
complicated fractures. V. R. LAROCHE. Soviet khir
1935, 6 43
- The importance of perfect reduction of fractures. X.
EUSTOCH. Rev de chir. Hosp Jueves, Mex 1936, 7
241
- Reduction of displaced fractures. H. LARIVET. Presse
méd. Par 1936, 44 5
- Skeletal traction. H. G. JÄGER. Rev de chir.
Hosp Jueves, Mex 1936, 7 263
- New universal apparatus for the functional treatment
of fractures. A. M. LARON. Soviet khir 1935, 6 307
- Fundamentals versus gadgets in the treatment of frac-
tures. P. B. MAZUREK. Surg. Gynec. & Obst. 1936, 62
776
- The status of fracture treatment in the field of surgery.
C. R. MINCHAY. Surg. Gynec. & Obst. 1936, 62 413
- Military surgery in the treatment of fractures of the
large bones of the extremities due to gunshot wounds.
M. C. M. GODOY ALVAREZ. Rev de chir. Hosp Jueves,
Mex 1935, 6 779
- Local anesthesia in fractures. E. D. NARVALL. Surg.
Gynec. & Obst., 1936, 6 444
- Theory and practice in the functional treatment of frac-
tures. A. M. LARON. Soviet khir 1935, 6 313
- The causes of non union: bone growth and regeneration.
W. R. CURRIE, J. J. CALLAGHAN, and C. S. SCHLICK.
Surg. Gynec. & Obst. 1936, 62 417
- Electric and metallic studies in bone repair. F. MAS-
MONTENEO. Bull. et mémo Soc. d. chirurgiens de Par 1935,
27 60
- Recurrent dislocation of the shoulder. O. CASAS and
O. MANDOTZ. Bol. Soc. de chir. de Rosario, 1935
244
- Notes on fractures of the clavicle in the adult. F.
GORDON. Rev d'orthop 1935, 4 629
- Skeletal fractures. V. A. HANSEN. Soviet khir 1935,
6 303
- Massive only bone grafts of the upper extremity. W. K.
WIRTH. J. Orthopaedic State M. Assn. 1936, 20 30
- Isolated fracture of the internal lip of the trochanter of the
humerus: the so-called fracture of Langier. P. FRIEDT.
Mém l'Acad de chir 1935, 6 1470
- The treatment of epiphyseal fractures of the humerus
by skeletal traction. MADO and VARGAS. Bol. Soc. de
chir. de Rosario 1935 7

- Fractures of the humerus M C O'SHEA Ann Surg, 1936, 103, 297 [566]
 Scollar's traction in unreduced fractures of the forearm and in old shoulder dislocations H B THOMAS Surg Clin North Am., 1936, 16, 191
 Fractures of both bones of the arm or leg, their management E W CLEARY California & West. Med., 1936, 44, 94
 Fractures of the carpal scaphoid D W G MURRAY Canadian M Ass J., 1936, 34, 180
 Conservative or operative treatment of fracture of the os navicular carpi? L BOEHLER Wien med Wchnschr., 1935, 2, 1085
 Fractures and dislocations of the vertebrae V An outline of operative treatment of vertebral fractures L BOEHLER Chirurg, 1935, 7, 715
 Vertebral fractures and dislocations VI Fracture of the transverse processes of the cervical vertebra and its treatment L BOEHLER Chirurg, 1935, 7, 759
 Fractures of the spine S T IRWIN Brit M J., 1936, 1, 1
 Fractures of the vertebral column R OLLERVIDES, JR Rev de cirug, Hosp Juarez, Mex., 1930, 7, 811
 Osteoporosis of old age and vertebral fractures W JAEGER Ztschr f Unfallmed., 1935, 29, 81
 Fracture of the transverse processes of the lumbar vertebrae W F BAASTAD Norsk Mag f Lægevidensk., 1935, 96, 936
 Radiographic study of a vertebral fracture before and after reduction. R BLOCH Mém l'Acad de chir., 1935, 61, 1471
 The neurosurgical considerations of fracture of the spine. E OLDBERG Surg Clin North Am., 1936, 16, 291
 Functional treatment of compression fractures of the vertebrae V GORINEVSKAJA and E DREWING Lyon chir., 1936, 33, 44
 Pelvic fractures associated with dislocation of the hip A. M LANDA Sovet khir., 1935, 6, 344
 Pelvic fractures S J RATNER. Sovet khir., 1935, 6, 313
 Fractures of the pelvis W R CUBBINS Northwest Med., 1936, 35, 63
 Intracapsular fracture of the neck of the femur F H ALBEE Rev. brasil. de cirurg., 1935, 4, 523
 Secondary necrosis of the neck of the femur following fracture in young people M ZUR VERTH Zentralbl f Chir., 1935, p 2549

Fracture of the neck of the femur as a mechanical problem F PAUWELS 1935 Stuttgart, Enke.

The treatment of 278 consecutive fractures of the femur G C WEIL, H G KUEHNER, and J P HENRY Surg, Gynec & Obst., 1936, 62, 435

Roentgen technique for the internal fixation of fractures of the femoral neck C H PETERSON Am J Roentgenol., 1936, 35, 226

Presentation of patients with fracture of the neck of the femur by the key method G A HENDON Kentucky M J., 1936, 34, 42

Old symmetrical fractures of the shaft of the femur, incomplete consolidation probably associated with periosteal dysplasia (osteospathyrosis of Lobstein) P DUVAL and M D'AUBIGNÉ J de chir., 1936, 47, 248

Operative treatment of lateral and intertrochanteric fractures of the neck of the femur F FELSENEICH. Zentralbl f Chir 1935, p 2405

Late sequelae following healing of fractures of the neck of the femur F BERGMANN Deutsche Ztschr f Chir., 1935, 245, 496

Leonardo Galli and the treatment of transverse fractures of the patella C H MEDINA Arch de med, cirug y especial., 1935, 16, 818

Fracture of the leg below the knee H S STACY Med J Australia, 1936, 1, 285

Fender fractures F J CORROU Surg, Gynec & Obst., 1936, 62, 442

The mechanism and functional treatment of posterior marginal fractures of the tibia A. M LANDA Sovet khir., 1935, 6, 356

The treatment of fractures of the external malleolus O WINTERSTEIN Schweiz med Wchnschr., 1935, 2, 999

The treatment of fractures of the os calcis. F FELSENEICH Arch f orthop Chir., 1935, 35, 590

Orthopedics in General

Rehabilitation of the disabled H. H. KESSLER. Am J Surg, 1936, 31, 316

Orthopedic considerations in the treatment of spina bifida R S SMITH. Surg, Gynec. & Obst., 1936, 62, 218

The treatment of spina bifida occulta W WEISS Zentralbl f Chir, 1935, p 2295

Spastic paralysis with special reference to birth injuries F A. CHANDLER Surg Clin. North Am., 1936, 16, 231

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Peace time injuries of the large blood vessels of the extremities. A. R. KLOSSNER Acta Soc med Fennicae Duodecim, 1935, 21, Fasc. 3 [567]

The treatment of varicosities F ECKHART Zentralbl. f Gynaek., 1935, p 1589

When and how should one operate upon varices? S ROSEN. Muenchen. med. Wchnschr., 1935, 2, 1522

Late aneurism following war injuries E DOTTI Poli clin., Rome, 1936, 43, sez prat 147

So-called spontaneous aneurisms A A GUKASJAN Sovet khir., 1935, 8, 146

Saccular aneurism of the splenic artery A A REMIZOV Sovet khir., 1935, 8, 136

Carotidocavernous arteriovenous aneurism, pulsating exophthalmos. A MONTEIRO and P FILHO Mém l'Acad de chir., 1935, 61, 1441

Arteriovenous aneurism of the right brachial artery DIAMANT-BERGER. Rev de chir, Par., 1935, 54, 820

Arteriovenous aneurism of the superior gluteal artery due to war injury R. PECCO Arch ital di chir., 1935, 41, 702

The treatment of chronic thrombophlebitis T T ORLOV and N V PIKOVER. Sovet khir., 1935, 7, 74

Results of oscilometry in endarteritis obliterans N N KUKIN Sovet khir., 1935, 8, 25

Surgical treatment of obliterating endarteritis J ARCE and A S INTROZZI. Bol inst. de clin quir, Univ de Buenos Aires, 1935, 11, 133

An experimental study of the surgical treatment of obliterative endarteritis A S INTROZZI and A. GAZCON. Bolinst de clin. quir, Univ de Buenos Aires, 1935, 11, 310

The relationship of phospholipin metabolism to thrombo angitis obliterans H. M RABINOWITZ and J KAHN. Am J Surg, 1936, 31, 329

- Borger's disease arteriectomy; case for a period of a year. L. DEJARDIN. *Mem Acad de chir* 1936, 6: 44.
- Three arterial embolizations in the same patient. H. L. DETROIT. *Lancet*, 1936, 230: 475.
- Clinical observations in two cases of Raynaud's disease following operations on the sympathetic. P. VALDOVI. *Polichin Roma*, 1936, 43: sec. chir. 32.
- Amputations. A case report and a review of the literature. E. B. FRIEDMAN and O. C. COE. *Ann. J. Cancer* 1936, 30: 369.
- Ligation of the common carotid and internal carotid. K. HICKEI. *Zentralbl. f. Chir.* 1936, p. 369.

Blood; Transfusion

- Blood transfusion. R. M. DAVIS, JR. *J. South Carolina M. Assn.* 1936, 27: 40.
- Blood transfusion on the battle field. M. C. G. GÓMEZ. *Archiv. Rev. de ciruj. Hosp. Juarez, Mex.* 1935, 6: 708.
- Continuous drip blood transfusion. H. L. MARKOFF and A. KERNICK. *Proc. Roy. Soc. Med. Lond.* 1936, 29: 337.
- Fractional blood transfusion. D. N. BELYUK. *Soviet Chir.* 1935, 7: 0.
- The transfusion of incompatible blood, a report of our last 700 transfusions. A. CHERIE. *Bertr. u. Klin. Chir.* 1935, 62: 308.

- Transfusion of the blood of the cadaver to human beings. S. S. JETROFF. *Pross. med. Par.* 1936, 44: 66. [547]
- The problem of cadaver blood transfusion. M. O. SANCHEZ. *Soviet Chir.* 1935, 6: 69.
- Biochemical changes of cadaver blood. M. G. SANCHEZ, R. E. GONZALEZ, and A. V. RUBINOV. *Soviet Chir.* 1935, 6: 72.
- Fifty transfusions in children with surgical diseases. S. T. LERNERMAN. *Soviet Chir.* 1935, 7: 37.
- Blood donation and tuberculosis. E. M. KOSAN. *Soviet Chir.* 1935, 7: 37.
- Nephritis following transfusion. P. SCHOLLA. *Rassegna Internaz. di Chir. e terap.* 1935, 6: 134.

Lymph Glands and Lymphatic Vessels

- A fundamental, reciprocal relationship between myeloid and lymphoid tissues: its recognition, nature, and importance as revealed by experiments and clinical studies. B. K. WICKHAM, C. A. DODD, and L. A. EAT. *J. Am. M. Assn.* 1936, 906: 609. [547]
- Demonstration of the lymph nodes. Medical clinic. W. S. MINNERTON. *J. Iowa State M. Soc.*, 1936, 26: 65.
- The etiological study of subacute lymphogranulomatosis. R. JAHSON. *Folia med.* 1935, 16: 249.
- Hodgkin's disease of bone marrow and liver without apparent involvement of the lymph nodes. H. HANSEN. *Ann. J. Roentgenol.* 1936, 31: 75.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

- The heart in relation to surgery and anesthetics. H. W. RAYNE. *J. Iowa State M. Soc.* 1936, 26: 26.
- Splanchnic block in essential hypertension: preliminary report. E. A. TYLER. *Ames. & Anal.* 1936, 25: 44.
- Observations on the effect of hyperventilation on the vital capacity of surgical patients. J. H. POWERS. *J. Thoracic Surg.* 1936, 5: 504.
- Removal of foreign bodies in the extremities. W. J. KIRBY. *J. Kansas M. Soc.* 1936, 37: 37.
- Cesarean surgery in the treatment of cancer. W. B. STEWARD. *J. Kansas M. Soc.* 1936, 37: 35.
- Hemostasis by electrocoagulation. von SIEGELA. *Zentralbl. f. Chir.* 1936, p. 330.
- Chaucal manifestations of postoperative hormonal changes. R. FERRACANI. *Rev. and quinq. de path. (oncology)*, 1935, 4: 806.
- The treatment of hypochromic anemia following operations. J. M. RABENTON. *Rev. de chir. de Barcelona*, 1935, 5: 433.
- Post-traumatic aneurysm. G. W. HALL and G. B. LARSON. *J. Am. M. Assn.* 1936, 90: 45.
- Post-anesthetic leukocytosis. E. M. BORD. *Canadian M. Assn. J.* 1936, 34: 50.
- The prophylaxis and treatment of postoperative thrombosis. B. FORTIN and H. A. ROTH. *Surg. Clin. North Am.* 1936, 16: 287.

Antiseptic Surgery; Treatment of Wounds and Infections

- Further observations on the disturbance of metabolism caused by injury. D. P. COMBESKOV. *Bertr. J. Surg.* 1936, 43: 505. [547]

- The prevention of electrical injuries. A. D. KUPAN. *Soviet Chir.* 1935, 3: 51.
- Injuries to the hand. V. A. RUTY. *J. Iowa State M. Soc.* 1936, 26: 90.
- The organization of first aid in Moscow. M. D. YEREMIN and A. S. POCHINOV. *Soviet Chir.* 1935, 6: 3.
- A review of the histological changes of the glomerular apparatus. V. V. GONCHARENKO. *Soviet Chir.* 1935, 6: 14.
- Modern criteria and practice in the treatment of war injuries. M. C. GONZALO CARRANZA. *Rev. de chir. Hosp. Juarez, Mex.* 1935, 6: 717.
- A new method of treating wounds. J. LITVA. *Arch. f. Chir. Chir.* 1935, 282: 645.
- Former amputations in the treatment of wounds. A. SCHWENKER. *Med. Klin.* 1935, 3: 75.
- Loeb's cod liver oil treatment in practical surgery. H. JEVICO. *Muenchen. und Wechschr.* 1935, 2: 1435.
- Röntgen therapy of inflammatory conditions of the fingers and hand. V. ZAROKA. *Russk. Chir. u. Gynæk. C. Chir.* 1935, 14: 335.
- Skin grafts in head injuries. A. BARONOVSKY. *Soviet Chir.* 1935, 7: 7.
- The surgical treatment of double penetrating injuries. M. C. MA. UEL. GONZALEZ. *Rev. de chir. Hosp. Juarez, Mex.* 1935, 6: 749.
- Emergency laparotomy for gunshot wounds of the abdomen. M. HÉCTOR MANJARRÉS. *Rev. de chir. Hosp. Juarez, Mex.* 1935, 6: 757.
- The prevention of chemical burns in industry. S. E. KARELAKOV. *Soviet Chir.* 1935, 6: 3.
- Frost and so acid and alkali burns. S. V. RABENTON. *Soviet Chir.* 1935, 6: 0.
- The treatment of burns. G. C. PETERSEN. *New Eng. land J. Med.* 1936, 14: 900.
- The treatment of burns. Z. V. RABENTON. *Soviet Chir.* 1935, 6: 16.

The treatment of burns V V GORINEVSKAYA and Z P SAMSOVAYA *Sovet. khir.*, 1935, 6 216

The present status in the treatment of superficial burns in general practice. J COUTURAT *Presse méd., Par.*, 1936, 44 18

Driving light treatment of burns J J SHIMANKO *Sovet. khir.*, 1935, 6 226

Tannic acid and silver nitrate in burns A G BETTMAN *Surg., Gynec. & Obst.*, 1936, 62 458

The treatment of burns with tannic acid E BERNARD *Bull. et mém. Soc. d. chirurgiens de Par.*, 1935, 27 583

The treatment of surgical infections with solutions of a new chlorine compound of low potential H A GOLDBERGER. *West. J. Surg., Obst. & Gynec.*, 1936, 44 105

The use of azochloramid in infected wounds R H KENNEDY *Am. J. Surg.*, 1936, 31 294

The treatment of tetanus experiences at the Royal Alexandra Hospital for Children, Sydney *Med. J. Australia*, 1936, 1 198

Tetanus, treatment by antitoxin intracisternally P V SCHUNK *Colorado Med.*, 1936, 33 115

Seroprophylaxis of tetanus in traumatic cases P P LARIN *Sovet. khir.*, 1935, 7 55

Staphylococcal antitoxin in surgery L SAUVE *Mém. l'Acad. de chir.*, 1936, 62 45

Staphylococcal antitoxin. J LEVELL *Mém. l'Acad. de chir.*, 1936, 62 40

Staphylococcus antitoxin in the treatment of staphylococcal affections G RAMON, A BOCAGE, P MERCIER, and R RICHOU *Presse méd., Par.*, 1936, 44 185 [569]

Bacteriophage service to patients with staphylococcus septicemia. One hundred patients with staphylococcus septicemia receiving bacteriophage service W J MAC NEAL and F C FRISBEE *Am. J. M. Sc.*, 1936, 191 170, 179 [570]

Mycotic infections and their treatment J C BELISARIO *Brit. M. J.*, 1936, 1 404

The importance of early diagnosis in mycotic diseases, with special reference to blastomycosis P BEREGOFF-GILLOU *Canadian M. Ass. J.*, 1936, 34 152

Facial actinomycosis F M BUSTOS *Semana méd.*, 1935, 42 2044

Some toxemias of animals due to anaerobic organisms H A WOODRUFF *Brit. M. J.*, 1936, 1 406

The early diagnosis, prophylaxis, and treatment of anaerobic infection N G KURZNETZOV *Sovet. khir.*, 1935, 6 246

The prognosis of carbuncles R CONSIGLIERE *Semana méd.*, 1935, 42 1994

Benign cases of anthrax based on a case in the Freiburg University Dermatological Clinic E KAUFMANN 1935 Freiburg 1 Br., Dissertation

Facial erysipelas. A series of cases originating from a common source. H J LAVENDER. *Med. Bull. Univ. Cincinnati*, 1935, 7 83

Coccidioidal granuloma J V VAN CLEVE. *J. Kansas M. Soc.*, 1936, 37 54

Infection of the soft tissues by gas-producing organisms, its early recognition by roentgenograms, a report of five cases. L R LINGEMAN *New York State J. M.*, 1936, 36 259

Tularemia in Mexico? M E BUSTAMANTE *Med. rev. mex.*, 1935, 16 565

Torulosis L A MITCHELL. *J. Am. M. Ass.*, 1936, 106 450

An example of fulminating intracranial pyogenic infection, the result of spread from infected paranasal cavities. C A HUTCHINSON *J. Roy. Army M. Corps, Lond.*, 1936, 66 115

Anesthesia

Anesthesia a teaching outline, stages of anesthesia A. E. GUEDEL *Anes. & Anal.*, 1936, 15 1

Electrocardiographic studies during surgical anesthesia C M KURTZ, J H BENNETT, and H H SHAPIRO *J. Am. M. Ass.*, 1936, 106 434

Carbon-dioxide absorption technique in anesthesia R M WATERS *Ann. Surg.*, 1936, 103 38 [570]

The hyposthenic constitution as a hazard of anesthesia H A HOUGHTON *Anes. & Anal.*, 1936, 15 47

Anesthetic emergencies U H EVERSOLE *New England J. Med.*, 1936, 214 468 [570]

The safest anesthesia versus safest anesthetic J GALASSO *Anes. & Anal.*, 1936, 15 30

Postanesthetic headache P W HARRISON *Arch. Surg.*, 1936, 32 99 [571]

A critical evaluation of carbon dioxide in the prevention of postoperative pulmonary complications L WATERS *Anes. & Anal.*, 1936, 15 22

Evipan sodium anesthesia M D KURGAN *Sovet. khir.*, 1935, 6 90

Anesthesia with sodium evipan W D DACOSTA *Folia med.*, 1935, 16 555

The present status of evipan anesthesia E DOMANIG *Wien. klin. Wchnschr.*, 1935, 2 1245

Polyneuritis following evipan anesthesia PALMER. *New Zealand M. J.*, 1936, 35 21

Paraldehyde and other preliminary hypnotics A H. MILLER. *Anes. & Anal.*, 1936, 15 14

Methods of using eunarcon in accident surgery E HILDEBRANDT *Muenchen. med. Wchnschr.*, 1935, 2 1348

Unsaturated carbon gases as plant stimulants and anesthetics P W ZIMMERMAN, A E HITCHCOCK, and W CROCKER. *Anes. & Anal.*, 1936, 15 5

Some problems in the hydrodynamics of novocain in the subarachnoid fluid of man compared to the hydrodynamics of novocain in the light of artificial spinal fluid. G R. VEHRIS *Anes. & Anal.*, 1936, 15 33

A new narcotic. T YAMAGAKI. *Nagoya J. Med. Sc.*, 1935, 9 243

General anesthesia in surgery H FUSS *Fortschr. d. Therap.*, 1935, 11 513

An improved anesthetic technique for general surgery W A FRASER and J T GNATHMEY *Surg., Gynec. & Obst.*, 1936, 62 236

Anesthesia with nitrous oxide C VAN GELDEREN *Geneesk. Bl. u. Klin. en Lab. v. d. prakt.*, 1935, 33 213

Oropharyngeal insufflation of oxygen, gas tensions in the bronchus. E A ROVENSTINE, I B TAYLOR, and K E. LEMMER. *Anes. & Anal.*, 1936, 15 10

Uncontrollability of ether anesthesia based on microchemical and anaphylactic studies of the blood. F RINECKER. *Beitr. z. klin. Chir.*, 1935, 162 184

Intravenous anesthesia with pentothal sodium. R. JARMAN and A L ABEL. *Lancet*, 1936, 230 422

Spinal anesthesia. L DOYLE. *Brit. M. J.*, 1936, 1 11

Spinal anesthesia in Mexico I MILLÁN. *Med. rev. mex.*, 1935, 16 153

The technique of general spinal anesthesia I MILLÁN. *Med. rev. mex.*, 1936, 16 17

High lumbar anesthesia, technique R BUNN *Chirurg.*, 1935, 7 678

Spinal anesthesia followed by functional and organic hemi-anesthesia. J J SPANGENBERG and C R BELGRANO *Semana méd.*, 1936, 43 166

Nervous complications following spinal anesthesia. S BROCK, A BELL, and C DAVISON. *J. Am. M. Ass.*, 1936, 106 441

Surgical Instruments and Apparatus

The sterilization of gloves R I LARSEN. *Soviet Khir* 1935, 5: 59

Stiches of a bacteria free surgical suture material. W 104 DREIBACK. *Deutsche med. Wochenschr* 1935, 61: 55
A new retractor for the Caldwell-Luc operation A M ARNDT. *Laryngoscope*, 1935, 45: 122

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

Aids to stereoscopy I S HIRSH. *Radiology* 1935, 30: 34

Theorem hydroxide sets as opaque media in roentgenography T O MERRINS and J D MILLER. *Am J Roentgenol* 1935, 31: 184

Calcium changes and their importance in diagnostic radiology G H OATON. *Brit J Radiol* 1935, 9: 101

Considerations on the roentgen exploration of the pharyngolaryngeal region F ARCT, M ARCT, and J C OCAJANO. *Medicine*, Madrid, 1935, 6: 44 [572]

The roentgen study of mediastinal tumors. W R RACONISSE. *South M. J.* 1935, 39: 159

Analysis of X-ray shadows of the heart, with particular reference to determining different areas in the cadaver K KIRAKI. *Acta scholae med. corr. imp. Kyoto*, 1935, 18: 50

The importance of X-rays in the diagnosis of perforated ulcer S V IVALOVA-POLJAKOVA. *Soviet Khir* 1935, 6: 47

The clinical significance of X-ray interpretations in malignancies A BORLAND. *Radiol. Rev. & Mississippi Val M. J.* 1935, 38: 10

Radium therapy D QUINN. *New York State J. M.* 1935, 36: 5

Radiotherapy for acute and chronic inflammatory conditions A U DRYUMON. *Texas State J. M.* 1935, 3: 616

Roentgen therapy of certain infections F M HODGES. *Am J Roentgenol* 1935, 33: 145

The present status of the X-ray as an aid in the treatment of gas gangrene J F KELLY. *Radiology* 1935, 30: 41 [572]

Dewey's disease and its treatment by deep X-rays S K MONTGOMERY. *Brit M. J.* 1935, 337

Roentgen irradiation in the treatment of malignant disease A N ABERNETHY. *South M. J.* 1935, 39: 145 [572]

The effect of large doses of X-rays on the growth of young bone E M REESE and W E WILKINSON. *J. Bone & Joint Surg.* 1935, 18: 6 [571]

Modification of radiosensitivity by means of readily penetrating acids and bases R E ZIEGLER. *Am J Roentgenol* 1935, 35: 450

The production of neoplasia in dogs by roentgen rays I H PAOK. *Am J M. Sc.* 1935, 191: 51

The effect of colloidal heavy metals on the growth of transplanted tumors and their radiosensitivity IV. The effect of colloidal bismuth and lead on the radiosensitivity

A histological study of the effect of colloidal bismuth and lead on the rabbit sarcoma and rabbit epigloss. T KIKUCHI. *Jap J. Obst. & Gynec.* 1935, 14: 33

Radium

Recent advances in radium therapy H S BOYD. *Brit. M. J.* 1935, 401

The radium treatment of postoperative peritonitis H H BOWEN and R E FARRER. *Radiology*, 1935, 30: 37 [574]

Radium in primary carcinoma of the female urethra L A FOXE. *Am J Roentgenol* 1935, 31: 39

Miscellaneous

Forty years of radiology (1895-1935). A review and some reminiscences. O W C KATZ. *Brit J Radiol* 1935, 9: 76

Some observations on short wave therapy R B TAYLOR. *Canadian M. Ass. J.* 1935, 34: 183

A new biochemical phenomenon following short-wave irradiation. F FOLKEL, L SIVON, and A PLATMAN. *Reference med* 1935, 5: 785

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

The growth of human fibroblasts in media containing various amounts of thyroxine J P M VOGLAAR and E EISENHART. *Am J Cancer* 1935, 30: 145

Congenital defects D P MURPHY. *J. Am. M. Ass.* 1935, 105: 457

Congenital fissural clubbing of the fingers and toes. F L HOFFMANN, JR. *Canadian M. Ass. J.* 1935, 34: 245

Needles in the feet E I LLOYD. *Brit. M. J.* 1935, 330

Headache W H CARR. *Am J Opht.* 1935, 9: 93

Sciencia P JORDAN. *Rev. Soc. de med. chir. do Rio de Janeiro*, 1935, 40: 486

The diagnosis of obscure fever I The diagnosis of an explained, long continued, low grade fever L HANNAH and C W WADSWORTH. *Bell. Johns-Hopkins Hosp. Balt.* 1935, 38: 109

The medical problems and management in essential hypertension S M WATTS. *Berg. Gynec. & Obst.* 1935, 6: 352

Otolarynx in the operative treatment of sphenocleptia and tetary IV S GALKIN. *Deutsche Ztschr. f. Chir.* 1935, 245: 546

Shock its causes and treatment W KOSKOW. *Med. W. It.* 1935, 6: 603

Shock treated by arterial air H H HENCKOCK and T E REYNOLDS. *California & West. Med.* 1935, 44: 93

Fat embolism R KONTROPOVICH and A BOWELL. *J. Missouri State M. Ass.* 1935, 33: 48

Fat embolism R I HARRIS. *Canadian M. Ass. J.* 1935, 34: 66

An experimental study of cerebral pressure in fat embolism FARR. *Arch. f. Klin. Chir.* 1935, 18: 53

Polymyositis O K G GORDON and F B SERRA. *Lancet*, 1935, 30: 561

On the amount of blood in the peripheral vascular system in some pathological conditions, especially peritonitis

- A. G. H. LINDGREN. *Acta chirurg Scand*, 1935, 77 Supp. 30
- Gas pleuritis following benzene injection. R. von OETZLER. *Mitt a d Grenzgeb d Med u Chir*, 1935, 47, 74
- Ulceration of the lower extremities. A. VALLIO. *Falsh med*, 1936, 17, 21
- Gargene. G. DI TAKAY. *Surf Clin North Am*, 1936, 16, 317
- A case of agranulocytosis with recovery. A. S. WALLER and R. A. GREEN. *Med J Australia*, 1936, 1, 238
- Agranulocytic angina. CINCHELM. New Zealand M. J., 1936, 35, 10
- Lymphocytic angina. F. RUCITELLI. I. TROISI and S. KUBINSTEIN. *Rev Assoc med argent*, 1935, 30, 1540
- Renal rickets and dwarfism a pituitary disease. B. CHORNY. *Brit J Surg*, 1936, 23, 552 [575]
- Calculated hydatid cysts. C. A. STALLER. *Rev med chirurg de patol femenina*, 1935, 4, 785
- Skin sensitivity in multiple superficial benign epithelioma. L. GOLDMAN and W. M. MILLAR. *Med Bull Univ Cincinnati*, 1935, 7, 102
- Mesothelial tumors. C. I. GINSBURGH. *Am J Cancer*, 1936, 26, 378
- Hemorrhagic cutaneous granuloma of focal origin. G. SANCHEZ. *Riforma med*, 1935, 31, 180
- A case of lipoma. H. A. BOYER. *J Roy Army M Corps, Lond*, 1936, 60, 124
- Chordomas and the report of 3 cases. O. HANSEN and L. A. PALMER. *Virginia M Month*, 1936, 6, 648
- Hepatic nodular metastasis of the melanotic nevus. A. CIERVOS. *Arch argent de enferm d apur digest*, 1935, 11, 29
- The treatment of melanoma, a report of 400 cases. F. F. ABUE. *Surg, Gynec & Obst*, 1936, 62, 406
- The neural components of teratomata. R. A. WHITE. *Med J Australia*, 1936, 1, 231
- Sacrocoxygeal teratoma. R. SHAFERMAN. *Arch franco-belges de chir*, 1936, 35, 55
- Operative treatment of extensive angioma of the head. SCHULOWITZ. *Arch f klin Chir*, 1935, 14, 171
- Properties of the causative agent of a chicken tumor. VII. Ultraviolet light absorption spectrum of purified chicken tumor extracts containing the active principle. L. CLAUDI and A. ROHREN. *Am J Cancer*, 1936, 26, 344
- Pre-operative diagnosis of malignant tumors. WEIT and HEGELERT. *Mém l'Acad de chir*, 1935, 12, 4
- Biopsy in malignant disease. O. H. FELLNER and W. P. STORV. *California & West Med*, 1936, 44, 99
- The benign nevus the malignant melanoma. The problem of the borderline case. R. B. GREENBLATT. F. R. POND, and G. T. BEYARD. *South M J*, 1936, 29, 122
- The experimental alteration of malignancy with an homologous mammalian tumor material. III. Concerning the filtrability of the material. A. F. CASEY. *Am J Cancer*, 1936, 26, 276
- The closure of defects following removal of malignant melanomas of the skin. I. ORBACH. *Wien med Wchnschr*, 1935, 3, 1112
- A contribution to the study of immunity to cancer, vaccination. R. FISCHER. *Rev med de la Suisse Rom*, 1936, p. 32
- The role of ultraviolet rays in the development of cancer provoked by the sun. A. H. ROFFO. *Lancet*, 1936, 230, 472 [575]
- Studies in carcinogenesis. I. The production of tumors in mice with hydrocarbons. M. J. SHEAR. *Am J Cancer*, 1936, 26, 322
- Studies in carcinogenesis. II. The detection of dibenzanthracene in mouse tumors induced by this hydrocarbon. F. I. OKAN and M. J. SHAR. *Am J Cancer*, 1936, 26, 334
- Carcinoma of the skin. I. G. BARTLE. *J Kansas M Soc*, 1936, 37, 4
- A clinical study of dermoid carcinoma. Z. von SZATHMARI. *Arch f Gynaek*, 1935, 159, 689
- A study of the enzyme content of a parenchymatous adenocarcinoma of the pancreas and a comparison with the normal human pancreas. K. SICHURA, G. T. PACK, and I. W. STEWART. *Am J Cancer*, 1936, 26, 351
- The bone marrow in Brown Pearce carcinomatosis of the rabbit. J. W. ORR. *J Path & Bacteriol*, 1936, 42, 103
- Cancer survey of Michigan. I. J. RECTOR. *J Michigan State M Soc*, 1936, 35, 99
- The prevention of cancer. I. G. H. MALONEY. *J Michigan State M Soc*, 1936, 35, 99
- What can the general practitioner do to combat cancer? I. PAPP. *Muenchen med Wchnschr*, 1935, 2, 1855
- The importance of an organized cancer clinic. Q. U. NEWELL. *South M J*, 1936, 29, 212
- The non-specific management of the cancer patient. I. G. MILLER. *J Oklahoma State M Ass*, 1936, 29, 10
- Twenty two years experience in the treatment of cancer in the Second University Gynecological Clinic of Budapest. F. G. R. Radhol. *Rdsch*, 1935, 4, 215
- A biological study of the effect of the toxins of malignant tumors on the suprarenals lymphatic system, and other organs. IV. The effect of toxins of malignant tumors on the lymphatic glands especially on their new growth. V. The action of the toxins of malignant tumors on the lymphatic glands with special reference to the function of the reticulo-endothelial system. VI. The action of the toxins of malignant tumors on the cardiac and vascular systems. VII. Extracts of malignant tumors and organs of non-straited muscle. S. OKAMOTO. *Jap J Obst & Gynec*, 1935, 18, 424 [575]
- An immunological study of human and animal malignant tumors. I. Demonstration of the toxin of sarcomatous cells by means of rat sarcoma. II. Mechanism of the action of the toxin of sarcoma cells. III. Properties of the cellular toxin of sarcoma. IV. Demonstration of the cellular toxin of sarcoma by the use of rabbit sarcoma. V. Demonstration of the toxin of cancer cells. VI. Property of the cellular toxin of tumor (I). VII. Property of the cellular toxin of tumor (II). I. NARITA. *Jap J Obst & Gynec*, 1935, 18, 458 [576]
- Sarcoma production in mice by a single subcutaneous injection of a benzoylamino quinoline styryl compound. C. H. BROWNING, R. GULBRANSEN, and J. S. F. NIVEN. *J Path & Bacteriol*, 1936, 42, 155
- The morphology of the sarcomas produced by 1, 2, 5, 6-Dibenzanthracene. C. D. HAAGENSEN and O. F. KREIBEL. *Am J Cancer*, 1936, 26, 368
- Osteogenic sarcoma in a calcified hematoma. F. E. BUTLER and I. M. WOOLLEY. *Radiology*, 1936, 26, 236
- A case of fibrosarcomatosis. J. F. TOURRELLES, J. M. PACÉS, and A. PIERNES. *Semana méd*, 1935, 42, 1527
- Multiple hemorrhagic sarcoma of the skin (Kaposi). C. T. PEARCE and L. E. VALKAR. *Ohio State M J*, 1936, 32, 137
- Idiopathic multiple hemorrhagic sarcoma (Kaposi). G. M. MACKAY and A. C. CIPOLLARO. *Am J Cancer*, 1936, 26, 1 [576]
- Hutchinson Boeck disease (generalized "sarcoidosis"). F. T. HUNTER. *New England J Med*, 1936, 214, 346
- The effect of prolon on transplantable mouse sarcoma. R. C. TANZER. *Am J Cancer*, 1936, 26, 102
- Medical aspects of avian A. C. SMITH. *Arch Otolaryngol*, 1936, 23, 139

The origin and action of bacteriophages. K. F. HINZELIN. *Acta Soc. med. Fennicae Duodecim*, 1933, 13, Fasc. 2.

The effects of coal tar and other chemicals on the roots of algaes copra. M. LEVINE and H. BRONKOV. *Ann. J. Cancer*, 1936, 95, 291.

The effects of constriction and release of an extremity: an experimental study of the tourniquet. H. WILSON and V. W. ROOSE. *Arch. Surg.*, 1936, 37, 154.

The advantages and limitations of aspiration biopsy. H. E. MARTIN and F. W. STEWART. *Ann. J. Roentgenol.*, 1936, 35, 243.

Incisional biopsy. H. M. HANFORD and C. D. HANCOCK. *Ann. J. Roentgenol.*, 1936, 35, 36. [577]

Electrocauterization biopsy. G. E. WASS and C. F. GEACOCKER. *Ann. J. Roentgenol.*, 1936, 35, 248.

Surgical anastomosis in general practice, exclusive of trauma. R. R. GRAMER. *Canadian M. Ass. J.*, 1936, 34, 36.

Emergency minor surgery. S. LEACH, JR. *Virginia M. Month.*, 1936, 62, 647.

The surgical risk. J. S. ROEDER and W. G. LEAMAN. *Ann. Surg.*, 1936, 103, 11.

The renal phase of surgical risk. L. U. ROYSTER. *Ann. Surg.*, 1936, 103, 34.

Urethra in surgical diseases. P. L. LEBLANC. *J. Clin. Med.*, 1936, 6, 633.

Surgery in its relation to hypertension. A. W. LAWSON, W. MICH. CHASE, and G. F. BROWN. *Surg. Gynec. & Obst.*, 1936, 62, 14.

General Bacterial, Protozoan and Parasitic Infections

Septicemia due to bacillus proteus parvum-like type recovery. DEODATE, LEVY-BACHEL, and FRANCHET. *Bull. etudes Soc. med. et hop. de Par.*, 1936, 57, 63.

Postoperative septicemia. C. DE RITTS. *Rassegna internaz. di chir. terrap.*, 1936, 6, 70.

Ductless Glands

Insulation of the endocrine glands. J. LARI. *Ann. Brochures med.*, 1936, 6, 277.

Endocrinology and the conservative state. A. W. PROBERT. *J. Med. Soc. New Jersey*, 1936, 33, 80.

Endocrine therapy. L. L. SEYMOUR. *Ann. Surg.*, 1936, 103, 18.

The calorigenic action of extracts of the anterior lobe of the pituitary in rats. W. O. THOMPSON, A. G. TAYLOR, III, P. A. THOMPSON, S. B. NABLER, and L. P. N. DICKET. *Endocrinology*, 1936, 30, 55. [577]

Hypersensitization to pituitary extracts. F. A. SMOOT and C. F. RUDOLPH. *J. Am. M. Ass.*, 1936, 101, 518.

The action of anterior pituitary hormones on the basal metabolism of normal and hypophysectomized guinea pigs and on a paraneuronal incidence of temperature. O. RUDOLPH, O. C. BARTLE, R. W. BARTLE, C. S. MORAN, and E. L. LARSEN. *Endocrinology*, 1936, 30, [578]

The action of the sex hormones of the hypophysis on the gonads in the male. G. LACROIX. *Delphin. Rasseg.*, 1936, 43, 208, 210.

Biological effects of placental extract (Hanson) amplification of effects in the young resulting from the treatment of successive generations of parent rats. L. G. ROYSTER, J. H. CLARK, A. STERNBERG, and A. M. HANCOCK. *J. Am. M. Ass.*, 1936, 106, 370.

The effect of antithyroid substances on the secretion of milk. P. H. SCHWARTZ. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1936, 100.

A case of hyperparathyroidism. C. E. GILBERT. *Kennedy M. J.*, 1936, 34, 44.

Chronic hypothyroidism. M. A. GOURMEL. *Endocrinology*, 1936, 30, 85.

The experimental production of enlargement of the accessory sex organs in the rat. J. F. MCCARTER, D. SOUTHWAY, and L. P. HANCOCK. *Pennsylvania M. J.*, 1936, 30, 228.

The relation between ovarian castration and cholelithiasis. SOLOVAY. *Arch. digest. et gynec.*, 1936, 47, 75.

A comparison of the changes induced by acute pure estrogenic compounds in the mammae and testes of mice. H. BURROWS. *J. Path. & Bacteriol.*, 1936, 42, 16.

An embryological interpretation of the changes induced by estrogen in the male reproductive tract. S. ZICKMAN. *Lancet*, 1936, 230, 155.

Experimental production of tumors by estrin. W. CRANER and E. S. HOFFMAN. *Lancet*, 1936, 230, 217.

Vitamin E and hormones. II. The possibility of re-establishing fecundity in female rats with an ovariectomy by means of ovarian grafts from normal rats. F. MARCHESI. *Sperimentale*, 1936, 80, 617.

Surgery of the suprarenal glands and its relation to endocrine surgery. R. LAUREN. *Brochures-med.*, 1936, 16, 307.

Surgical Pathology and Diagnosis

Statistical evaluation of diagnostic methods. A. J. REED. *Virchow. Archiv.*, 1936, 27, 871.

Variability and reproducibility in V. KAPLAN. *Proc. med. Soc.*, 1936, 44, 8.

Hypertonic calcareous. P. J. STERN. *Surg. Clin. North Am.*, 1936, 6, 64.

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